AMERICAN GAS ASSOCIATION MONTHLY

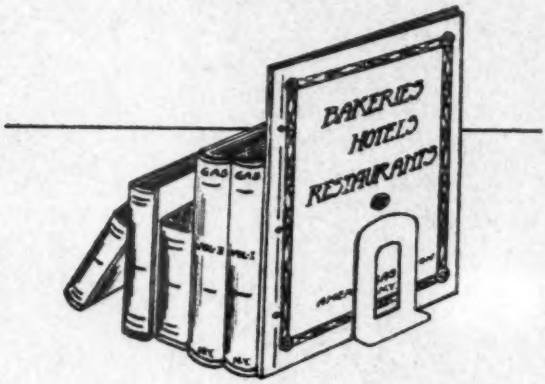
Vol. VII No. 3

MARCH, 1925

THERE are just two things to keep in mind regarding public relations. First, give the public a square deal. Second, see that the public knows it is receiving a square deal. All the rest is detail.

—*A. B. Day*

Where Gas is Used in Bakeries and Restaurants



JUST OFF THE PRESS

—this book should be distributed and read as widely as possible. Few gas companies are getting anything like the amount of business from these sources that is possible. Few gas users engaged in baking and preparing meals are obtaining the efficiencies from gas service that they ought to.

Information of this character can be directed where it is most needed only by the cooperation of the gas companies themselves in dealing with the customers of gas service in their territories. These books constitute one of the most effective methods of spreading the gas idea. Use them to circularize your prospects.

Methods of installation, hints on efficient operation and other data are given in every section of the book. It is a complete reference work on the application of gas to all forms of commercial baking and cooking.

Price $1.50 to Members—$3.00 to Non-Members.

CONTENTS

VOLUME VII MARCH, 1925 NUMBER 3

AUTHORS

AMERICAN GAS ASSOCIATION MONTHLY
342 MADISON AVENUE, NEW YORK, N. Y.
SUBSCRIPTION RATE *$3.00 PER YEAR*

Entered as Second Class Mail Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

EDITORIAL

Contact

We have sometimes been accused of being a nationwide industry with a strictly localized outlook. It is high time to announce to others, and to realize ourselves, that this is no longer true, if it ever was.

The world "do move," and so do people. Every considerable growth in your community means that new customers from other cities are joining your consumer family.

Does it matter to you what gas users in those cities have been taught to expect from the gas company?

A Matter of Records

Nearly all gas men are aware that a very considerable field for manufactured gas in the form of house heating lies just around the corner. There are just as considerable differences of opinion, however, as to the means to be employed both in cultivating the field and in solving the very real problems involved in taking on such seasonal loads.

A marked extension in house heating by gas has taken place generally during the present season, and this extension has been accompanied by great improvements in the application of gas to this important activity.

We hope and expect that much valuable data on this subject will be forthcoming when the current heating season is over. Gas companies who are engaged in this activity cannot be too strongly urged to segregate and analyze their house heating records, especially as to the effect of this class of business on distribution and plant capacity.

Pride

There are so many different kinds of pride, and their effect is so varied, that it has become extremely important to define and classify them.

There is the pride of stubbornness, and there is a false pride of superiority. There is the "pride that goeth before a fall." And, finally, there is the pride of achievement.

It is our sincere belief that the encouragement and sustenance of pride, both in the past and in the future possibilities of our industry, are among the most, if not the most, important functions that the MONTHLY can undertake.

It is well not to rush headlong into untried fields. But it is sometimes difficult to restrain a business that is growing as rapidly as the manufactured gas industry is today.

The wise policy is to lend a sympathetic ear to the innovator and to learn, if possible, both by his mistakes and his successes.

We are proud of the things that our leaders and the rank and file of the industry have accomplished. We believe that even bigger things are still to come.

It is the ambition of this publication to reflect in its pages both the hopes and the achievements of representative gas men everywhere.

AMERICAN GAS ASSOCIATION MONTHLY

Vol. VII MARCH, 1925 No. 3

Hidden Costs and How to Find Them

A. B. GREENLEAF, Peoples Gas Light & Coke Co., Chicago, Ill.

I HAVE just finished writing a story on the comparative costs of firing brick with gas and firing with coal and wood. It is the sixth or seventh story that I have had a hand in where comparisons have been made with gas versus other fuels. These articles always create a good deal of interest, not because they possess any literary merit, but because they are opening up a new line of thought and investigation in the field of industrial heating.

Whenever an article is published in which there is a discussion on the comparative costs of two fuels, and one of those is gas, it always results in a great many inquiries from all over the country asking for more detailed information. These letters are revelations in themselves. All kinds of questions are asked, but the outstanding feature of them all is that the majority of American manufacturers have given little or no consideration to the hidden costs involved in using solid or liquid fuels.

Business forecasters predict prosperous times in the coming months, but with the admonition that no manufacturer dare "rest on his oars." New business will be obtained and old business retained only through increased efforts and closer control on manufacturing costs. These professional forecasters predict the dropping out of those concerns who are least able or willing to compete in the price market.

Prices are being reduced in nearly every field. Manufacturers must revamp their processes and reduce their manufacturing costs if they are to enjoy the prosperous times that are now upon us. To be sure, it is a curious situation, but nevertheless true, that in these prosperous times many industrials will be forced out of the race because of their inability or unwillingness to go through their plants and analyze their manufacturing costs.

Comparative costs are not new. Back in the days gone by when the electric motor was being introduced to the manufacturing industry, business men were shocked at the high cost of the power derived from this new invention. Coal was then three or four dollars a ton.

The cost of the electricity put into the motor that would turn out an amount of power equivalent to the power that could be generated from a ton of coal seemed prohibitive at first. Some one pointed out that the cost of the ton of coal was not the only thing to be taken into con-

sideration. The coal had to be stoked. The boiler had to be cleaned. Ashes had to be removed. There was an enormous investment tied up in boilers and repairs, steam engines, belting, condensers and a lot of other paraphernalia. When these things were taken into consideration, the cost of operating the electric motor seemed to fade away.

Nevertheless, the conversion from steam to electric power was not all of a sudden. There are a lot of steam-power generating plants in operation today, although their number is decreasing year after year. Practically all American manufacturers, it is safe to say, take all of the items into consideration when they compare the costs of the various sources or forms of power.

Comparisons That Do Not Compare

Comparative costs of heat are analagous to comparative costs of power.

Cordwood-Fired Smoke House

When someone says "How much more does gas cost than coal?" I experience a desire to say, "Is it warmer in the country or in the summer?" Either query is as ridiculous as the other. Let me cite a few examples pointing out the fallacy of such comparisons.

The large wholesale chain groceries, turning out millions of loaves of bread, use gas exclusively for baking. The first cost of the gas is undoubtedly in excess of what the cost of the coal or coke would be to turn out the same quantity of bread. But why have these big interests made gas the standard fuel for bread baking? Why don't they burn coal if it is so much cheaper? We do not have to go very far for the answer.

These large wholesale bakers have made an exhaustive study of advertising and merchandising as it applies to the food industry. (The gross sales value of their products exceeded 12½ billion dollars last year.) They have found out through sad experience that the buying public demand their food products exactly as they are represented in the advertising.

Try and sell Mrs. Housewife a loaf of "Snow Girl" bread today and tomorrow and every other day for a month or so, but during that time change the quality and appearance of each and every loaf of bread without changing the brand name. Obviously, that particular brand loses its identity. It is mere bread then, not "Snow Girl" bread. The public will not ask for it. They have found out that "Snow Girl" bread is just like any other kind of common bread.

Branded goods must be uniform in quality as well as appearance. Gas is the only fuel that will produce these results. Therefore, the wholesale bakers demand gas. It has built up their bread business to a tremendous size. This would never have been possible with coal. So how can you compare the cost of coal with the cost of gas? Such comparisons mean nothing unless the whole process and story is taken into consideration.

One of the many reasons why coffee

roasters prefer gas to all other fuels is that the open flame sears the surface of each individual bean, thus preventing the escape of the delicious oils that make *real* coffee. No other fuel can effect this sealing process.

The public is gradually learning to demand certain brands of coffee. Those are the brands that have been roasted with gas. The high quality of the coffee roasted in gas equipment has created a very active demand for gas-roasted coffee. It has increased sales as well as profits.

How, therefore, can you compare the cost of roasting coffee with gas with the cost of roasting it with coal or coke? If the use of gas creates a large demand for your product, and the use of coal makes it difficult to retain customers, there isn't much left to be said. The cost of coal may be a fraction of a cent less than the price of gas, but what does that amount to if your customers are demanding gas-roasted coffee?

I suppose that the cost of gas in baking crackers is two or three times that of the cost of coal to do the same work. But the amount of flour saved when gas is used raises the cost of coal to a point in excess of that of the cost of gas. Gas puts a bloom on either side of the cracker. Every cracker is uniform in quality as well as appearance.

Lack of Knowledge a Bar

These are the things that modern cracker bakers capitalize. And yet these "selling points" were given but little consideration before gas was extensively introduced into the cracker baking industry. Perhaps the lack of knowledge of the value of gas in its application to this industry is the reason why coke for so many years was the only fuel used. Modern science and invention have changed this particular industry as well as thousands of others wherever gas has been introduced.

It is safe to say that, in nine cases out of ten, the first cost of gas is in excess of the cost of other fuels when all other

Courtesy of the Northwestern Packing Company

Modern Smoke House Using Gas

considerations are barred. There are many cases, such as carbonizing of steel parts, where it will develop that the cost of gas is double or treble the cost of the fuels formerly used. But that means little or nothing. The real question involved is, "What does it cost to use the solid or liquid fuel?" Then it is that gas turns out to be by far the cheaper fuel.

"IT IS NOT WHAT A FUEL COSTS" but "WHAT DOES IT COST TO USE THE FUEL?"

Carbonizing steel parts in modern gas-fired furnaces can be done at about one-third the cost of the operation of crude fuel furnaces.

One of the more humorous examples of this fact is found in the story of the plant that required the services of a small steam boiler. They used steam in processing some of their goods. It so happened that this establishment received hundreds of worthless wooden crates every day. These crates were used as fuel, but had to be broken up into suitable lengths before they could be fed to the boiler. Upon investigation it was found, very much to the amusement of all concerned, that the cost of the labor in breaking up these crates was in excess of the cost of the gas that would be required to operate the same boiler. Bear in mind that the fuel was "free of charge!"

Fallacies that Enter into Costs

There exists at the present time considerable unwillingness among many manufacturers to acknowledge the costs of burning solid or liquid fuels. They seem to think that the price of oil in the tank car on the switch track should be compared with the cost of gas at the burner.

Why manufacturers should be unwilling to exhibit or acknowledge these costs of burning "crude" fuels is certainly a mystery. It is even more so when it is remembered that hundreds of plant managers who have investigated the cost of using solid or liquid fuels have found other "hidden" costs in their manufacturing processes that were never even dreamed of.

A certain large manufacturing concern in the Middle West, burning thousands of gallons of oil each week, maintains a fuel department whose duty it is to determine the cost of burning the various kinds of fuels purchased. In this way they are able greatly to reduce their heating expenses. This concern discovered that it cost about 10 cents per gallon at the burner to burn a certain grade of oil that cost 5 cents f.o.b. the tank car.

Gas Seals Coffee Flavor

An industrial gas sales engineer, hearing of this finding, remarked to one of his prospective customers, who was burning oil, that so and so found that 5-cent oil cost 10 cents at the burner. The potential customer questioned the statement. It did not seem possible that the cost of the oil could be 100 per cent more expensive at the burner than in the car. He reached for the telephone and called the firm which had made the investigation. You can imagine his surprise when the facts were verified and found to be just as the salesman had stated.

Building the First Waterless Holder in America

ALTEN S. MILLER, The Bartlett Hayward Co., Baltimore, Md.

THE waterless gas holder differs from the older type in that a piston moves up and down inside of a fixed envelope, instead of the entire holder moving over and in a tank of water.

The structure in which the piston moves is a polygon having from 10 to 28 sides, depending on the size, and having a height varying from one and a fifth to one and two-thirds times the diameter of circle circumscribed around the polygon. The structure is roofed over, but usually has windows in the sides immediately under the eaves so as to permit the illumination of the piston and the side walls above the piston.

The only moving part is the piston in the middle of the holder. The piston itself is trussed and plated so as to hold gas and to give it the necesary rigidity to permit it to be guided by rollers and to maintain it in a horizontal position. The method of guiding is similar to that used in water tank holders, except that no tangential rollers are used. In the place of the tangential rollers at each column, two pairs or more of brass rubbing strips are used in the entire holder. The vertical distance between the rollers is about one-tenth of the diameter of the holder.

The joint between the piston and the holder walls is made by a tar seal which is the vital problem in the holder.

Figure 1 shows some of the detail of the tar seal. The vertical line on the left with the projecting parallel lines indicates the side of the holder; the rest of the structure is a part of the piston.

The tar seal consists of a rubbing plate turned up slightly on the edges to cause it to glide smoothly as the piston moves. The plate is kept in contact with the side of the holder by weighted levers and the plate is thin enough to accommodate itself to any slight irregularities in the surface against which it moves. The joint between the plate and the piston is made by canvas attached to the back of the plate and carried over to the side of the piston as shown. The canvas runs over a wood rod to keep it from touching the side of the holder and lies on a wood strip. It is not subjected to friction or to other strain than that caused by the weight of the tar and should last as long as the foundation under the holder.

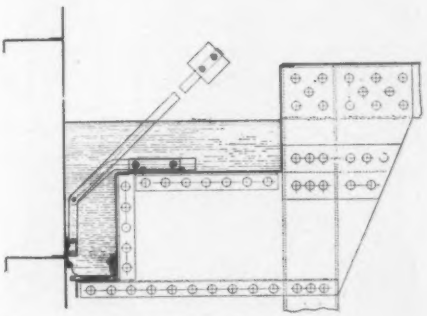


Fig. 1. Cross Section of Tar Seal

This same picture shows the form of the sheet used for the plating. The bottom of each sheet has one bend and the top two, the bends being designed to provide the necessary stiffness and to facilitate the riveting.

Such tar as may leak by the rubbing strip will run down into a reservoir made by placing a dam sheet four or five feet inside of the holder sides at the bottom. From this reservior the tar flows under a diaphragm and over an adjustable weir to

a tank. The tar, being heavier than water, will flow under the diaphragm and the water will remain in the reservoir. There are usually about half as many overflows as there are sides to the holder, and in addition there is a water overflow similar to those provided for the tar except that the diaphragm is omitted. In the water overflow the weir is kept slightly higher than it is kept in the tar overflows.

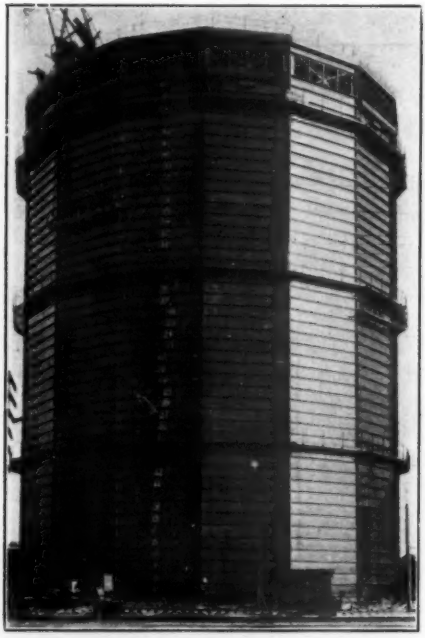


Fig. 2. The Northern Indiana Holder

When the tar rises above a predetermined level in the overflow tank, a float rises and throws the switch which starts the pump. The tar is forced to tanks between the level of the upper gallery and the line of windows.

Figure 2 shows the first holder that has been completed in this country, located at Michigan City, Indiana. It has a capacity of 1,000,000 cu.ft. and is 105 ft. in diameter, and 136 ft. 8 in. from the top of the foundation to the eaves.

The sheets are made of No. 9 steel and the columns are made up of I-beams. In order to stiffen the plates between the columns they are bent or flanged over to a depth of 7 in., with a second bend on the outer edge having a depth of 2½ inches. The columns are bolted at the bottom to the foundation and with the plates form stiff girders to withstand the wind pressure.

The windows may be seen at the top of Figure 2 and also there may be seen three galleries which run entirely around the holder. These galleries are not designed to strengthen the holder, but are for the purpose of inspecting and painting. The pipes carrying the tar from the overflow tanks at the bottom to the storage tanks at the top may be seen in the picture. The upper tar tanks are immediately below the windows.

When a certain amount of tar drains from the holder into a tar tank on the ground a float is raised which automatically starts the motor operating the tar pump. Tar is then pumped into the two tanks which are served by that pump and which run the length of the two sides adjacent to the pump between the upper gallery and the windows. Under ordinary operating conditions, the tar flows immediately from the the tar tank, which is kept full, to the piston seal. In case, for any reason, additional tar is required, a valve under the bottom of the storage tanks at the top of the holder may be opened and the tar permitted to drain through the distributors to the piston seal.

The pump used for raising the tar was especially designed for handling heavy and viscous liquids, and after ten years of operation has been found to be particularly well adapted for service in connection with this type of holder.

At intervals around the perimeter of the holder, slightly below the top, are slots connected with pipes running above the

level of the roof. As the piston rises, a small amount of tar from the seal will run into these slots, after which the rubbing bar will pass over them. After the rubbing bar passes these slots, such tar as may have run into them will flow back under the rubbing bar into the holder and gas will blow through the vent pipe or pipes. This will prevent the piston being raised high enough to damage the roof.

The method of erection is somewhat unusual in that the roof is built on supports resting on the piston while the latter is on the ground, and afterwards the holder is built and the roof connected in its final position. The machinery for lifting the structural material is placed on the roof in a manner generally similar to the method of construction used in the older type of holders. As each line of sheets is put in place the piston is blown up with air to a new position and is hung by hooks to plates which are fastened to the columns. In the new position an additional row of plates is put in, but all work is done while the piston is hung on the special plates and not while it is floating on air. During the construction period no tar is used in the seal.

In July, 1923, at Buer, Germany, a holder having a capacity of something over 900,000 cu. ft. used 91 kw. h. in 26 days for pumping the tar which seeped past the rubbing bar. During December this same holder used 6.7 kw. h. and during April, 1924, it used 25 kw. h., showing that the cost of pumping is nominal.

The advantage of this type of holder is a material saving in the cost of foundation, where the ground has but a limited bearing power, less capital required for boiler plant, a saving in steam for heating, and materially less expense for painting. In the case of a 6,000,000 cu.ft. capacity water tank holder, the load on the foundation is 90,000,000 lbs., whereas in the case of a waterless holder of the same capacity the load will be approximately 6,000,000 lbs. The difference is not a serious one, if the ground is firm and if it has a bearing power of a ton and a half or more per sq.ft.; but the advantage in the case of a waterless holder is very great, if the bearing power of the ground is 2000 lbs. or less per sq.ft.

The bending of the sheets of the length and thickness used in this construction require the services of a brake of unusual size and stiffness. No such machine was available and therefore it became necessary to build the brake before work could commence. Instead of having a bearing at each end, as is ordinarily the case, this machine has a bearing about every five feet; its total length is 32 ft. This machine is so rigid in every part that with it plates may be bent to almost exact angles and dimensions.

Ten years of steady use has proven this design to be practical and satisfactory in all respects. During this period forty or more holders have been completed and a number of additional ones are under construction and under contract.

DEDICATION CEREMONY

THE FIRST waterless gas holder in this country, which was built for the Northern Indiana Gas and Electric Company at Michigan City, was dedicated on Tuesday afternoon, February 10. The ceremony included the turning of a valve by Mayor William F. Dall, releasing the gas from the new holder to the company's distribution system. This was followed by an inspection trip through the gas manufacturing plant.

The holder is so constructed that additional capacity may be added if needed at some future time. An additional 50 feet in height may be added, bringing its total height up to 210 feet and its capacity up to 1,350,000 cubic feet.

Significance of the Mid-Winter Conference

ALEXANDER FORWARD

When one appraises in quiet thought the Mid-Winter Conference of leaders of the gas industry, there seem to be three outstanding impressions:

First, there was no dissent from the unbounded faith felt and expressed in the development of the gas industry during the immediate future into a position of still more vital importance among the forces of modern civilization. This conviction was based upon no mere conjecture, but was enforced by cold facts and figures presented by such men as Harry C. Abell, Henry L. Doherty, Dana D. Barnum, Charles A. Munroe and Bernard J. Mullaney.

Second, the Conference was generally hailed as notable for freedom and frankness of expression. Elements of weakness within and antagonism without the industry were clearly recognized and faced.

Third, a most happy understanding was reached between the gas men of the East and those of the Pacific Coast. The intervening distance prevents such close contact between the sections in the committee and conference work as would be desired, but a foundation was laid for close co-operation and mutual interchange of work and thought in the common interest of all sections of the country.

It was made clear that time, the forces of nature and the demands of modern civilization are working with us for the expansion of the gas industry. Every speaker and every listener caught the spirit. Yet it was recognized by all that the industry must be alert, full-armed, ready with skill and with resources to meet the demands of the immediate tomorrow and to eliminate all that stands in the pathway to the discharge of our manifest responsibilities to the age. Aerial flights of fancy were practically absent and practical discussion predominated.

This Conference paved the way for the next. Those who were prevented by reason of time and distance from attending the meeting in San Francisco will undoubtedly make it a point to be present at the next Conference in Atlantic City, tentatively set for June 3, 1925. It is safe to say all those from the East who went to the Pacific Coast will be there. News of that gathering has been spread by those present, some of the papers submitted have been seen in the trade journals, and the daily press has informed the public of the proceedings in a manner which demonstrates that the industry is wide awake.

The stage is therefore well set for a Conference in Atlantic City noteworthy in its personnel and memorable in its discussions and its results.

Keeping Ahead of the Demand

F. A. LYDECKER, Public Service Electric and Gas Co., Newark, N. J.

DEMAND" in the nomenclature of the gas business may be said to refer to the desire of the public for prompt and efficient service with sufficient gas of good quality and adequate pressure. In this great business of ours, we are gratified by a steady increase in the demand for our product which, in the last several years, is progressing by leaps and bounds.

The distribution department plays a most important part in supplying the demands of the public, for it is its function to provide everything called for in the previously mentioned definition except quality and, if it fails in the remaining requisites, we will very quickly hear our consumers complain of poor gas.

Welding Joints of 17-Inch Main

As our territory grows, new mains and services are installed by our construction gangs. When streets are made or renewed with an expensive permanent paving, it is good policy to overhaul existing mains and services to put them in first-class condition and install stub services to the curb wherever it is expected a demand for gas may occur.

All this operation extends the system piece-meal, and the distribution superintendent must have his territory properly surveyed so that his supply mains will be constructed together with his commercial mains. There will come a time when existing supply mains become too small to provide the service required of them and then, either the pressure carried must be increased, or additional supplementary mains constructed.

The Public Service Gas & Electric Co. of New Jersey has found it necessary in the last two years to increase its trunk line capacity very materially in order to keep ahead of the demand for gas. This program includes a mile of 36-inch cast iron medium pressure main from the gas works in Newark through the heart of the city to connect to a 30-inch main. Six miles of 16-inch cast iron medium pressure main from Ridgefield to Englewood. Six miles of 6-inch high pressure steel main from Burlington to Mt. Holly. Six miles of 6-inch high pressure steel main from Old Bridge to South Amboy. Five miles of 24-inch cast iron medium pressure main from Newark to South Orange. Three miles of 20-inch cast iron medium pressure main from South Orange to Millburn. Two miles of 16-inch cast iron medium pressure main from Trenton at Gas Works to outlying territory. Twelve miles of 36-, 30- and 20-inch cast iron medium pressure main from Harrison to Passaic, and ten miles of 17-inch O. D.

welded steel medium pressure main from Summit to Plainfield. This part of all extensions involved an investment of $2,041,851.00.

The latter extension from Summit to Plainfield is said to be one of the longest lines of welded 17-inch steel gas pipe in the East.

The completion of the new line gives the company a continuous system of mains reaching from the Hudson River on the north to the Delaware River on the south and makes it possible to deliver gas made in Jersey City to Camden or vice versa.

Sections of the territory between Newark and Passaic gave evidences of being inadequately supplied, or the growth there indicated that such soon would be the case. The capacities of the Market Street, Newark, Plant and the Paterson Plant, which supplies Passaic, were about at a maximum with no chance of increasing the Paterson Works, but a large plant was in contemplation for Newark at Harrison. Accordingly, a trunk main was planned to run through the districts affected from the location of the new plant at Harrison to the Chestnut Street Holder Station at Passaic. This was designed large enough to care for the territory through which it would pass, by connection to existing mains; for further extension northward into Bergen County and westward toward Montclair; and also to relieve the Paterson Works through the connection at the Chestnut Street Holder. Seventeen thousand and five hundred feet of 36-inch main were laid in the streets of Harrison, East Newark and Kearny; 15,318 feet of 30-inch main in Kearny, North Newark and Belleville, and 32,821 feet of 20-inch main in Belleville, Nutley, Clifton and Passaic. The main was laid with bell and spigot cast iron pipe with combination joints except in a few notable cases. Line valves were installed about every half mile.

Drilling Trenches by Air out of Solid Rock

In picking out a route for a main of this character, considerable care must be exercised to determine one which will be shortest in distance to serve the territory desired, avoid expensive street pavings as much as possible and obtain clearance from other subsurface structures such as large water mains and sewers. In spite of all precautions, however, there was much work done in relocating house connections of sewer, water and gas as well

as hydrant connections and other pipes at intersecting streets. Also, it was necessary to relay some of our own smaller gas mains, which were handled, rather than interfere with water mains or drains.

The work involved the crossing of a railroad cut 160 feet wide and 72 feet deep by means of our own bridge; a tunnel 345 feet center to center of shafts under the Passaic River from Kearny to North Newark at the Belleville Line and two other sub-river crossings. The pipe used on the bridge is a 36-inch welded steel flanged pipe and that in the tunnel and one of the river crossings is 30-inch extra heavy flanged pipe made heavy enough to prevent floating.

The bridge was designed and fabricated complete in the shops of the American Bridge Company, while our organization built the abutments on each side of the cut. It was brought to the scene on three flat cars and during a period between trains was placed bodily on the abutments by means of a powerful locomotive crane with a boom 115 feet long. The time spent in actually placing this bridge in position was 35 minutes. The pipe was rolled out on the bridge on cradles and bolted in position.

A tunnel under the Passaic River was chosen in preference to a sub-aqueous open cut ditch because solid red sandstone rock was found close beneath the bend of the river and because the current in the river channel at this point is very swift. The character and position of the rock permitted tunnel construction by the "free air" method, a cheaper and less hazardous proposition than the sub-aqueous ditch. Also, by location of the pipes in a tunnel, they would be more readily accessible in case of the necessity for repair.

A dock was built out into the river from the Newark side to the bulkhead line, which was 210 feet from the high water line. This was done to protect the tunnel shaft and the 30-inch main running from the tunnel. The bulkhead line on the Kearny side was approximately at high water mark, so this shaft was built on the natural bank of the river.

Both shafts were built of reinforced concrete above the rock, of 10 feet inside diameter. They were poured above ground directly over position and the mud and gravel then excavated beneath them, thus allowing them to sink until they met the rock. They were set into the rock about 3 feet and then sealed to

Welded Steel Mains Being Lowered into Place

it by cement grout. On the Newark side the concrete part of the shaft was built in three sections as it was necessary to penetrate about 38 feet before meeting the rock. The Kearny shaft encountered rock only 8 feet below the ground, so only one section of the concrete was needed there. It will be noted that the rock dipped materially from the Kearny to the Newark side. The remainder of the shafts and the tunnel itself were constructed by blasting a passageway through the rock by use of air drills and dynamite.

An interesting feature of the blasting process was the use of delayed fuses. The usual shot or blast consisted of 13 holes. Six holes were loaded with standard fuses, four with first delay fuses and three with second delay fuses. The object of this method of loading was to break out as much rock as possible with the first six charges and trim the hole and throw back the debris with the delayed charges.

After completion of the tunnel, the 30-inch flanged pipes were installed. This was done by lowering them endwise down the shaft by means of the derrick, rolling them out through the tunnel on a 4-wheel truck on an industrial track and bolting them in position. All this was done with water dripping down from the sides and roof of the tunnel through the crevices in the rock. The tunnel and shafts made about 160 gallons of water per minute after certain badly leaking crevices were sealed, and was pumped out by an electrically driven rotor pump capable of handling 300 gallons per minute. A steam pulsometer pump, 250 gallons capacity, which was used during the sinking of the Newark shaft, was held in reserve. The time for this work occupied about nine months.

Crossing the second river at the Newark-Belleville Line presented difficulties of tide, river current and a bottom composed of heavy gravel. A trench was dredged out alongside the Riverside Avenue Bridge by means of a crane with clam shell bucket mounted on a 5-ton auto truck. The 30-inch heavy flanged pipe was bolted together on skids over the trench, after which it was raised by chain blocks carried by overhead cross beams. The skids were removed and the assembled lengths lowered into position in the trench. Concrete was then placed under the pipes by means of a pipe chute, to form solid support and hold the main in position, after which the trench was backfilled, except the two ends at the banks. These were dammed off from the river and connection made to the land ends of the main which had already been laid.

The other sub-river crossing at Harrison Street, Nutley, involved a flume to carry the river across an open trench dammed off from the stream. The chief difficulty here was in handling the water which came into the trench through the gravelly river bed. Duplex power diaphragm pumps having a capacity of 250 gallons per minute were used for this purpose. After the trench had been excavated to proper depth, 20-inch cast iron bell and spigot pipe was laid.

Welded Joints in Use

Special equipment used on this job consisted of a Keystone Digger and grader for digging trench and backfilling for 30 and 36-inch main; a 3-ton gasoline engine driven crane mounted on a 5-ton automobile truck for handling pipe and fittings, backfilling trenches and sometimes digging them by means of a clam-shell bucket; air compressors mounted on Ford trucks for breaking pavement, running caulking tools and pumping up completed sections of main with air pressure for test; a small one-bag concrete mixer for restoring pavements and sidewalks and building bridge abutments; and

a Clark Tructractor, a very useful and handy dump cart for handling surplus dirt and back-fill.

When it was noted that the trunk line supplying Summit and Morristown and that supplying Plainfield gave evidences of being up to capacity during heavy hours of demand, a pipe line connecting Summit and Plainfield and a 3,000,000 cubic foot holder station at Summit were designed to care for the deficiency. A medium pressure main of 16-inch size was decided upon and steel pipe with welded joints was chosen because most of the route selected passed through sparsely settled country where little or no interference from other sub-surface structures was to be expected. The soil was such that steel pipe might be counted upon to give long life. It is possible also that the main may be required to carry high pressure some day. Welded joints were chosen because a pipe of this size would be difficult to handle with screw joints and because welding is supposed to form an extremely strong joint and one practically immune from leakage. Steel body valves were installed every half mile or mile, depending upon local requirements, with an expansion joint attached to each.

Ten Miles Across Country

The route passed through rough mountainous country, up and down hill, through the gap in the first Watchung Mountain range at Twin-Falls near Scotch Plains, where plenty of rock was encountered, and across three good sized creeks. The rock was blasted out and the creeks flumed to carry the water while the trench was dug or blasted and the main laid.

Due to the uneven character of the country and the winding nature of many of the roads traversed, it was necessary to construct many bends, and here the cutting and welding torch proved most valuable.

Practically all of the welding was done by the oxy-acetylene method, but electric arc welding was also tried. The electric welding apparatus was supplied by a generator mounted on a portable truck and the gas apparatus was supplied by acetylene and oxygen tanks. The pipe sections, each twenty feet long and seventeen inches in outside diameter, usually were welded over the trench or near it. Twenty-foot sections of pipe were lined up and butted together on skids on the ground and the points were then welded, the pipe being rolled so that the part being welded was uppermost. When a number of sections had been welded together, the long section of the pipe was slowly lowered into the trench by means of rope slings, one end of the rope being snubbed around supporting cross bars placed at various points along the line. These cross bars rested on the bank on one side of the trench and on wooden supports on the other.

Where there were other pipes crossing the trench, preventing the laying of more than one section of pipe at a time, the pipe sections were slid under the other pipes or were placed in position over them and the welding was done in the trench. For trench digging, an Austin machine and a Barber-Greene machine, supplemented by hand digging, were used.

The work was commenced during the last week of July at the Summit end and a few days later another gang was started in Plainfield. Later another gang was put to work at the Mountain Gap at Twin-Falls, and at the time the electric welders were working, there were four gangs in the field. The total force, when the work was in full swing, approximated 175 men. Work was practically finished December 1st, 1924.

Beautifying the Gas Works

JOHN F. WEEDON, The Peoples Gas Light & Coke Co., Chicago, Ill.

DOWN by de gas house" used to be a synonym for the toughest part of the town.

By reason of the fact that gas flows upwards engineers usually select low-lying property on which to build their plant, and, to facilitate delivery of materials by rail or water, or both, a network of railroad tracks and a convenient dock was a valuable asset and an almost indispensable adjunct.

The architect who designed the buildings may have devoted some care and thought to producing a pleasing exterior, but, pleasing or otherwise, they would be surrounded by an ugly high board fence, which always seemed to be in need of paint, and a ponderous, forbidding looking sliding gate, kept tightly shut, inviting the passerby to "keep out"; and, as if this sign of inhospitability were not sufficient, there was another one reading "Danger."

Under these conditions it was natural that the presence of a gas works in the neighborhood failed to fill the bosom of the citizen with civic pride. When his country cousins visited him, he might point with pride to the Court House, the fire station, and the opera house, but he steered his visitors around the gas works well to windward.

People absorbed the idea, and not without reason, that a gas works in the neighborhood was not a local asset. Gas works had to be, of course, but the popular belief was that they should be situated somewhere near the city dump.

This attitude of the public towards the gas plant did not add anything to the sum total of general goodwill towards the industry. Quite the reverse. When a company wanted to buy property for any purpose whatsoever it frequently found that the neighborhood was up in arms.

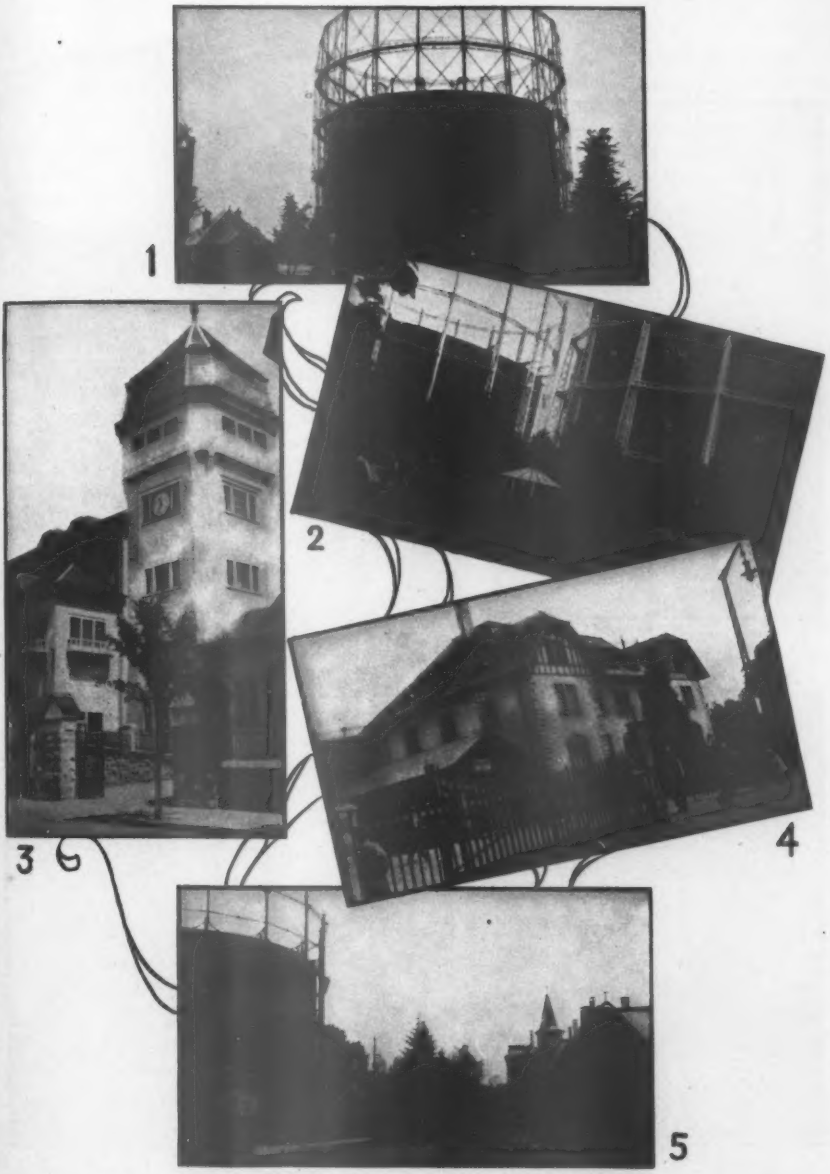
Some years ago our own company desired to erect shops, distributing station and gas holder on some property it had purchased. Led by the local priest, the villagers protested vigorously. An indignation meeting was called, and the priest led off by declaiming that "the trouble with a gas company was that it had neither a soul to save, nor a behind to kick."

The statement brought a laugh, but the Reverend Father was wrong on both counts. A gas company is very sensitive to kicks of all kinds, and it has a psychic side that only needs encouraging and developing to bloom into something beautiful that will be, as Keats says, "a joy forever"—and, incidentally, a very valuable asset.

The gas company property in this particular location was planned to give a pleasing effect. Ornamental iron fences were used, trees were planted, grass plots, gravel walks, and flower beds were tastefully displayed. It took on some of the aspects of a public park, instead of becoming an eye-sore and a nuisance.

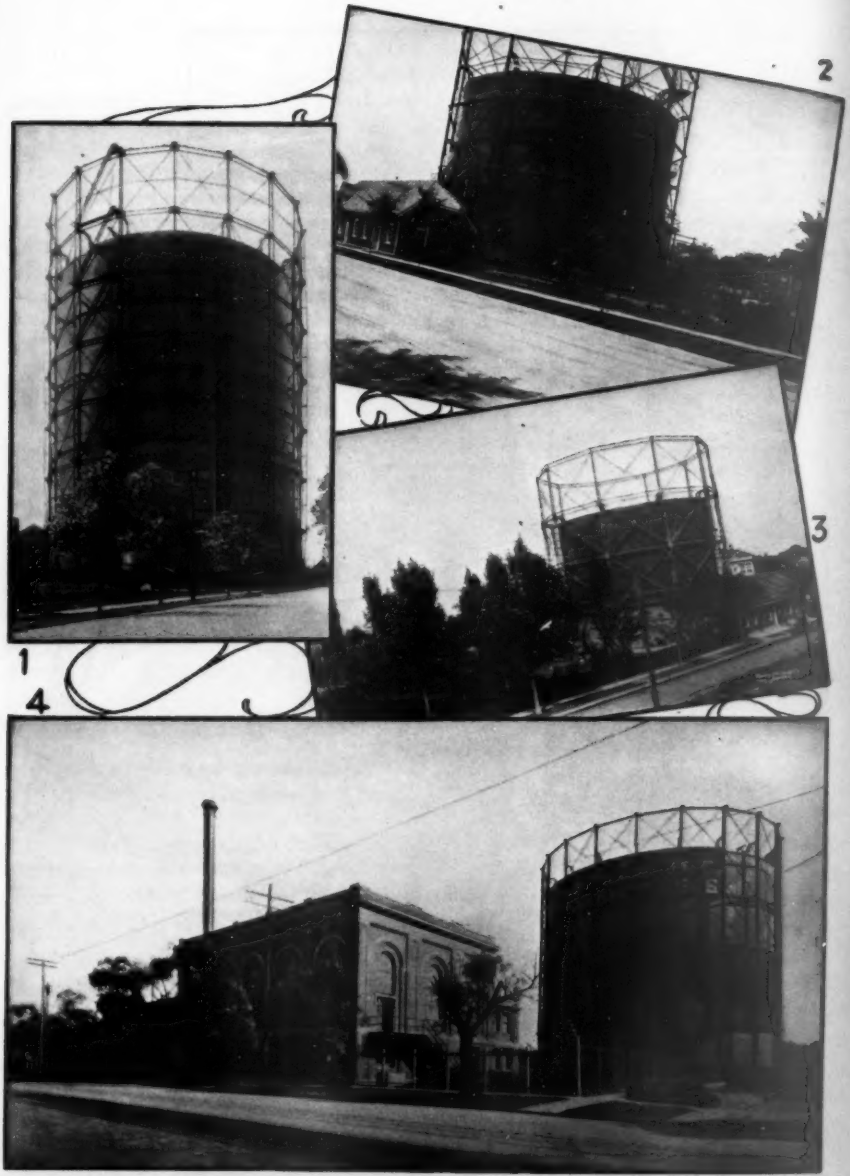
Beauty has been recognized by the United States Supreme Court as something of definite value, and that value is probably very much greater than most people imagine. There is now no reason why a gas company property cannot acquire much additional value by the simple means of being made pleasing in appearance to the passerby. The cost of doing so is an investment and not an expense.

The Blooming Gas Works Overseas



1.—By the Zuyder Zee, Holland. 2.—Bournemouth, England. 3.—Vevey, Switzerland, "Home of the Milk Chocolate." 4.—Zurich, Switzerland. 5.—Another View of the Zurich Plant.

—And Over Here



1.—District Holder of Peoples Gas Light & Coke Co., 64th and State Streets, Chicago, Ill. 2.—"Flower Garden Service Reserve No. 5," Public Service Company of Colorado, 24th and California Streets, Denver, Colo. 3.—"Dahlia Garden Service Reserve No. 3," Denver, Colo. 4.—Distributing Station, Irving Park Boulevard, Chicago, Ill.

A Program for "Training In" the New Employe

E. B. LUCE, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.

IN the September issue of the American Gas Association MONTHLY was an article setting forth the underlying philosophy and principles of the Baltimore plan of Industrial Education.

In the article referred to there appeared the following two paragraphs:

Training and educational work should be laid out and systematized as carefully as other work of the company. So far as possible, plans and programs should be made objective, thus opening the way to improvements. The necessary organization should be provided to study the training problems of the various departments and co-ordinate the effort. This educational service organization should have centralized control and extend through the selection of responsible department representatives to every part of the organization.

The work of training employes into jobs should be kept close to the jobs themselves. This principle applies to new employes and to old employes promoted or transferred to new jobs. Such training should be done by the more experienced employes, who are carefully selected for the purpose. The superintendents are not generally suitable persons to conduct the training of employes as it requires specialized and individual work with employes, which conflicts with the supervisory functions of superintendents. This training should be done by persons who are directly connected with the departmental activities and operate as a part thereof; but such persons at all times will operate under the plans, instruction, supervision, and with the co-operation and help of the Educational Department.

The Elements of Training

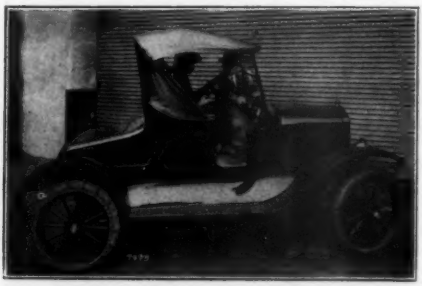
Since the preparation of the article from which the above paragraphs are taken, a field worker, Mr. S. Preston Hipsley, has been added to the staff of the Educational Director to supervise the "training in" of new employes. Con-

Explaining the Educational Opportunities

sequently, plans in relation to "training in" the new employe have been still further developed. Some of the guiding principles of this new effort are as follows:

1. Simplicity. All the forms, language, methods and whole procedure in relation to this work should be so simple that "he who runs may read."

2. Understanding. The whole program should unfold as rapidly as the field worker of the Educational Department can explain and convey complete understanding to the department heads and others who may be concerned. This will involve the selection of the training representatives in various departments and personal conferences before any letters or other printed instructions or guides are issued.



A Lesson in Transportation

3. Automatic. The plan and methods should be so laid out that "training in" work for each new employe will start automatically with his entrance to the job. This will mean essentially that the training representative in his department will supply him with the necessary material and directions.

4. Supervision. The field worker of the Educational Department will supervise the work, give continuous study to the problem and make personal contacts so far as possible.

5. Performance. The test of completion of the training period for the new employe will be based upon performance of his duties and responsibilities to the satisfaction of those responsible for his work. Certification of satisfactory performance will require the signature of the Department's training representative on the training guide and record sheet. As this work develops, and opportunity for studying it further is offered, there should be continued effort to work out standardized units of work with which to test the performance of the new employe.

After a brief experimental and testing period in the Transportation and Operating Stores Departments, the field worker will develop the "training in" organization for the company to consist probably of sixty or more men. These men will be his agents and the agents of department heads in applying and perfecting the plans and methods.

Preliminary Steps

In starting, working instructions for the job as a whole will be outlined, getting the necessary information from available occupational descriptions or job analyses, from an old employe who knows the job, from supervisors, superintendents and any others who may have something to contribute.

These "working instructions," which so far as possible should be in written form rather than oral, will be given to the new employe. To the new employe will also be given a "training guide and record sheet." On this sheet will be given the items which the new employe will be expected to cover in one week, including items of work and very often reading and study assignments. The "training guide and record" will be a single sheet with directions on one side and spaces on the other for the employe's use in recording his progress for one week.

For each week while in "training in" status, the employe will have one "training guide and record sheet." Thus it will be possible ultimately to determine the average length of the "training in"

period for various jobs and also the cost. In the Personnel Department at the time of final interview, the educational oppor-

Starting the New Man Right

tunities offered by the company are explained to the new employe and he is given a copy of Blue Book No. 2, which sets forth such opportunities in full. On the same day there will be mailed to his home address a copy of Blue Book No. 3.

In Blue Book No. 3, "fit-the-pocket-size," Information for the New Member of the Gas and Electric Company, issued in January, 1925, which is one of a company series of papers, addresses, manuals and reports, the following appears:

"New employes should read and study the following:

(a) Working instructions covering his duties and responsibilities wherever such are available. *The new employe should also keep a record of his progress on a training guide and record sheet.*

(b) Year Book 1922.

(c) Year Book 1923—"A House in Order" and subsequent year books as issued.

(d) The A. B. C. Primer—(In preparation.)

(e) "The Gas and Electric News."

(f) "The Light."

(g) The Blue Books, of which this is one, which contain subject matter related to their work.

(h) Technical journals and books which contain subject matter related to the work in hand.

(i) Announcements on bulletin boards.

(j) Posters, which are displayed from time to time.

"The library will furnish most of the above for the use of employes and will be glad otherwise to advise and assist them in getting this or other useful and helpful information.

"The monthly circular of Group Edu-

The Freshman Uses a Gauge

cational Meetings should be studied and arrangements made to attend those meetings outside of the employe's own group which seem to promise help to the new employe. Special attention should be given to the inspection trips which are planned and full advantage taken of them. The training facilities within the company, so far as applicable and helpful, should be used. Arrangements should be made with the training representative within the Department in such instances."

Systematic Methods Needed

It is the opinion of the writer that this expansion of the educational work of the Baltimore Gas and Electric Company is

the most important educational work which can be undertaken by this company or any other. In order to emphasize its relative importance, let us imagine a fictitious situation as follows:

A great catastrophe happens which destroys the material properties of the 966 gas companies of America, which serve 4,600 cities, towns and villages of the United States. By such a catastrophe, a population of 47,200,000 people is affected. Through this imagined catastrophe, there isn't a single gas manufacturing plant, distribution plant, main or service line left in the country. So far as the material facilities for making and distributing gas are concerned, the slate is wiped clean.

Let us imagine still further that in such a catastrophe none of the employes is killed or injured. All that we have left of the gas industry under our supposition is its body of employes with the knowledge, experience and skill which they have acquired through work, study and reflection and by tradition, from the experience and reflection of their predecessors, extending through a period of over 100 years. With such a body of personnel left, the replacing of the material plant and its subsequent successful operation would be possible.

To carry the fiction a step further, please imagine now that in addition to the destruction of the material equipment, the human element is also destroyed and that there is not left a single person or employe who knows anything about the gas industry. Under such a dire catastrophe the erection and later operation of gas making and distribution facilities would be nearly, if not wholly, impossible. The destiny of the gas industry would be turned back to zero, or to the beginning of the business.

Civilization would be confronted with the task of educating 73,000 or more employes who are necessary to carry on the gas industry in the United States as at present organized. This would be well nigh impossible. The catastrophe would be overwhelming and complete.

The process of passing knowledge, experience and skill along from one employe to another, so that a business can operate, is an educational process. In the ordinary working of an industry this process is carried on daily and little consideration given to it. Still, it must be apparent to all that it is an expensive and tremendously important function.

It now goes on quite largely by hit and miss, tell and show methods. It is believed that more planning should be done in relation to it, more supervision given to it, and the time period necessary for training any new employe on a job shortened, if possible, thus benefiting both the employe and the company that employs him.

The Consolidated Gas Electric Light and Power Company of Baltimore realizes the scope and importance of the work of "training in" the new employe and plans to proceed slowly and thoughtfully in accordance with the principles outlined herein, with the full cooperation of department heads, whose problems of training green help the plan will help to solve.

Columbia Summer Course

The annual summer course in gas engineering at Columbia University will be given again this year as usual, according to an announcement by Professor Jerome J. Morgan. Instead of the morning lectures, however, the hour has been changed to 4:30 in the afternoon to permit the attendance of men engaged in practical work in and about New York.

Effects of Gas Combustion on Bread Making

THE rapid expansion of our cities, the development of ways and means of better transportation, the tendency to purchase standardized goods in order to reduce house work, have all contributed to make wholesale bread production one of the most important of the fuel-using industries. Baking has outgrown the small local bake shop. It has become a real engineering problem and engineering methods must be applied to its solution.

THIS article is taken from Chapter II of "Bakeries, Hotels and Restaurants" of the Industrial Gas Series which is published by the American Gas Association. This is the third book of the series, the first two being "House Heating" and "Combustion." Gas companies encouraging this type of business have found these books invaluable in circularizing and educating industrial prospects.

Consider, for example, white bread, one of the essential articles of our national diet. Not only must the greatest care be employed to insure proper control of the quality of the various ingredients, but research is undertaken to determine if the necessary constituents are present which will stimulate the growth and the good health of the countless thousands who are to be fed. Gradually, the bakers are expanding the field of their scientific methods to include that of the baking process itself, which certainly is equally as important as the control of constituents. It is by means of the baking process that these constituents are given the proper "heat treatment," which combines them into the finished and perfect loaf. Just as in the case of metal heat treating, the characteristics of the product are determined by the care which is given to the heating process, so in the case of bread we can make or spoil our result by the attention we give it in the oven. That is to say, profiting by the experience of the metal industry, we realize that chemical control of purity of constituents is not the sole answer to perfection.

Years ago, chemical control provided steels of unquestioned purity, but they were only able to resist a tensile pull of 80,000 pounds per square inch. Today, with the self-same chemical composition, steels easily resist tensile pulls of 140,000 pounds per square inch. The difference lies solely in the proper heat treatment, and so with the bread loaf. Bakers have established research departments, they have installed automatic machinery, they are using labor-saving devices on all sides, but they are only slowly realizing the great advantages of gas as a bake oven fuel.

Gas is the ideal medium for all delicate operations requiring close control of temperatures, and it is this feature which is absolutely necessary to obtain a uniform bread, evenly and thoroughly baked. That close control of temperature and even heat distribution is not possible with wood, coal- or coke-fired ovens is well known to every baker. It is our job to teach them that when they use gas it is easy to obtain the desired temperature and, what is more, to keep all parts of the oven at that temperature. In addition, the control can be absolutely automatic and independent of the attention of the operator.

Baking temperatures are not very easily measurable owing to the variations in local practice and in the class of

goods baked. The insertion of a thermometer into the oven gives readings 10 to 20° below the true temperatures, because of the fact that the stem of the thermometer extends into the cooler outside air, and therefore cools the mercury column, making it read slightly under true temperatures. However, the readings of the thermometer are sufficiently accurate for most practical work. The following table gives the approximate range of baking temperatures for bread, biscuits and cake:

TABLE I

Actual Baking Temperatures

Name of Product	Temperatures °F.
Bread	400—450
Biscuits	400—450
Pastry	350—400
Eclairs	350—400
Cream Puffs	350—400
Lady Fingers	350—375
Cup Cakes	350—375
Layer Cakes	300—350
Drop Cakes	300—350
Cookies	275—300
Angel's Food	250—300
Wafers	175—200
Kisses	175—200
Macaroons	175—200
Loaf Cakes	175—200

In convincing the baker to use gas in the bake oven it will often be found that he raises the objection that the combustion products of gas will have a deleterious effect on the bread. The following explanation may be useful in demonstrating to the baker that the products of combustion of gas are not only noninjurious, but are actually of the greatest advantage in forming a perfect loaf.

The chief combustible elements common to all fuels are carbon, hydrogen and sulphur, but the nature of their chemical composition varies from the highly solid fuels to the liquid fuels, which are more or less indeterminate hydrogen mixtures, and to the gaseous fuels, which are mixtures of well-known gases and are relatively easy to analyze.

Of the three elements mentioned above, carbon and hydrogen are generally the only ones considered, since sulphur is present in such small quantities. In coals, however, the latter can be as high as 6 per cent, averaging 1 to 2 per cent. In fuel oils, the sulphur content averages around .5 of one per cent. In the case of gas, the state regulations restrict the sulphur content to a maximum of 30 grains per 100 cubic feet of gas, which is a very low percentage in-

Putting the Bloom on the Matzoth

deed. We can usually disregard the sulphur content entirely, because it is very low, and because sulphur yields on combustion a rather harmless gas, sulphur dioxide, which is sometimes used for bleaching and preserving figs and other food products.

We have, therefore, two combustible elements, carbon and hydrogen, which in their various combinations—methane, ethylene, etc.—yield on their complete combustion water vapor and carbon dioxide. The latter two gases form the product of combustion from any gas made up of any combination of hydrogen and carbon.

If, however, we actually analyze the products of combustion of a gas flame, we will find that there seems to be a large quantity of constituents other than carbon dioxide and water vapor. This is true, because we always burn gas with an excess of air, which is composed of 20.9 per cent by volume of oxygen and 79.1 per cent by volume of nitrogen. The nitrogen takes no part in the combustion

save to serve as a diluent to the combustible material.

If the combustible gases are unable to obtain the proper proportion of oxygen required for their combustion, it is possible that the carbon present will only oxidize (burn) to an intermediate stage. This primary stage of carbon combustion yields carbon monoxide, which in turn is capable of further union with oxygen, forming carbon dioxide. When carbon monoxide is present in flue products its source is not necessarily from carbon monoxide initially present in the unburned gas, but it may come from the partial combustion of carbon. When this occurs, more air should be supplied to the burners, because unburned carbon monoxide represents waste heat and is an undesirable flue product.

We have, thus, six combustible products whose effect upon bread we must consider:

1. Nitrogen—Major constituent, not only of the flue products, but also of the air we breathe. It is absolutely inert and has no effect on bread.

2. Oxygen—Small amount of oxygen is desirable in the flue products to insure complete combustion. It, too, has no effect on the bread.

3. Water vapor—The beneficent effect of this constituent in promoting crust formation and tending to keep the bread of proper texture already has been considered. Gas is the fuel producing the largest amount of water vapor on combustion. The use of gas frequently permits us to dispense with a steam boiler in bread baking.

4. Carbon Dioxide—In dough fermentation by yeast we find that two products are formed, alcohol and carbon dioxide. To some extent the volatilization of alcohol, but chiefly the bubbles of carbon dioxide passing through the dough, give it lightness and good texture. The tendency of carbon dioxide is to escape from the loaf. A study of the physical chemistry involved will show that the greater the partial pressure of carbon dioxide on the outside of the loaf, the less will be the tendency for the carbon dioxide within the loaf to escape. Thus, its presence in the flue products is most desirable. It has no effect upon the flavor of the loaf.

5. Carbon Monoxide—Under proper combustion conditions, none of this substance is formed; under the worse conditions, only a small quantity. It is inert as far as its effect upon the loaf is considered. It has no odor, and besides, since the baking loaf is continually giving up gases to the surrounding atmosphere, there will be no tendency for any of the gases to diffuse into the loaf.

6. Sulphur Dioxide—The effect of sulphur dioxide as a preservative has already been mentioned, but the amount present in flue products is entirely insignificant, particularly where gas is the fuel. The human nose can detect three parts in a million by its odor, but in gas flue products it is not discernible, so its concentration is very, very low. In coal flue products it can very generally be noticed. Incidentally, it should be apparent that the products of combustion of all fuels are practically the same, differing only in the varying proportion of the constituents.

The effect of flue products upon the bread need not cause any concern to the baker, and there is no need to employ indirect heating with gas fuel. To be sure, some of the indirect ovens are very satisfactory, but the reasons which prompted their adoption with coal or wood are no longer valid. With respect to the ideal modern fuel, gas, the flue products can be safely permitted to pass through the baking chamber—they will not harm the loaf.

Is He the Oldest?

NEW YORK claims the oldest man, in point of service, in the entire manufactured gas industry of the country. Is he really the oldest? We have an idea there may be others who will come forward to apply for the honor.

Wide World

John O'Connell of New York

John O'Connell was the first man to be taken into the Quarter Century Club of the Consolidated Gas Company at a recent dinner of the company's veterans. He has been in the active service of the gas company for nearly three-quarters of a century—69 years.

Now at the robust age of 86, he is still the active foreman of the company's huge plant at Avenue A and 21st Street. He never misses the 6:30 mass at the Epiphany Church in Second Avenue, and seldom misses an evening making the rounds of the sick of the parish as one of the visitors of the St. Vincent de Paul's Society. This, in addition to his busy eight-hour day up and down the long iron ladders of the gas tanks.

Sixty-nine employes of the company have a record of more than 40, but less than 50 years; 230 with more than 30 and less than 40; and 128 with more than 25 years and less than 30. It was a feature of the list that many of the men represented third and fourth generations in the gas company's employ.

Is She the Youngest?

LITTLE Miss Rose Georgianna Masser, whose smile is helping brighten up this page, is said to be the youngest customer owner of gas company preferred stock in the country. She is not quite a year old, having been born on the fifth of March, 1924. She has, however, found that few things in this world are better than good gas service, instantly rendered, which, she says, is an extremely important matter at her time of life.

As a junior stockholder of the Los Angeles Gas and Electric Corporation,

Miss Masser of Los Angeles

Miss Rose is taking the keenest interest in the affairs of the company and thoroughly approves of the $14,000,000 expansion program undertaken during the past year, which she so materially assisted by her installments.

Junior stockholder work is an entirely new activity, and Los Angeles is going ahead strongly along this line, believing that it pays. The first campaign of this kind was undertaken during the three weeks before Christmas, and the company has reason to estimate that hundreds of

Selling the "Reg'lar Fellers"

boys and girls paid their first installments on preferred stock out of their own pockets or were started on an investment career by fond uncles, aunts and parents. The new funds made available in this way may not bulk very large in the company's coffers, but Los Angeles feels that the true value of junior customer ownership will make itself felt in a reasonably short time to come.

"We admit," the company says, "that the space and attention given to this group of our stockholders is out of all proportion to their number, or the extent of their holdings. But we do not believe it is excessive from the economic standpoint, considering its importance to the future.

"Wherein is the importance of stock-ownership by boys and girls? Chiefly in the training of the boys and girls themselves. Each quarterly dividend check will be an object lesson in thrift which it would be hard to duplicate.

"It has been said that financial success is based primarily upon the ability to save. And yet, how many children receive any training in saving money?

"The concrete experience of receiving dollar-and-cent profits safely where they will earn yet other dollars and cents cannot fail to exert a helpful influence on the future careers of the boys and girls."

PERSONAL

J. R. STETSER has joined the Roberts and Mander Stove Company, of Philadelphia, as special representative, according to a recent notice. Although he has been active in the gas industry for more than twenty years, this is the first change in affiliation that Mr. Stetser has ever made. He was formerly with the Welsbach Company.

WARREN D. STEWART, for the past six years superintendent of the Fall River Gas Works Company, has recently been appointed superintendent of the gas division of the Western United Corporation of Illinois. Mr. Stewart has long been active in committee work of the A. G. A., being a member of both the Carbonization and Water Gas Committees of the Technical Section.

Finding the New Customer in 1925

A Forecast Based on Facts

A. GORDON KING

ONE thousand five hundred and sixty-two architects made confidential reports to "The Architectural Forum" which indicate that 1925 will be the third five billion dollar building year. The buildings are classified as 19 types and further sub-divided into seven geographical districts. The table below shows the first classification; another comprehensive table, which is too large for our columns, gives the number of reports and number of buildings reported for each state.

Building Types	N. Eastern States	N. Atlantic States	S. Eastern States	S. Western States	Middle States	Western States	U.S.A.
Automotive	$13,038,000	$37,896,000	$3,381,000	$8,604,000	$53,691,000	$25,848,000	$142,458,000
Banks	6,939,000	79,770,000	6,255,000	13,791,000	46,431,000	16,935,000	170,121,000
Apartments	39,879,00	284,931,000	19,077,000	28,881,000	163,779,000	42,810,000	579,357,000
Apartment Hotels	15,030,000	69,270,000	7,275,000	14,670,000	75,165,000	21,945,000	203,355,000
Clubs (Fraternal, etc.)	31,020,000	107,028,000	7,455,000	13,689,000	121,317,000	41,283,000	321,792,000
Community (Memorial)	7,023,000	24,054,000	765,000	3,765,000	14,454,000	10,971,000	61,032,000
Churches	22,389,000	106,740,000	16,905,000	37,494,000	150,063,000	39,885,000	373,476,000
Dwellings (Under $20,000)	15,837,000	109,281,000	10,809,000	11,904,000	64,497,000	23,394,000	235,722,000
Dwellings ($20,000 to $50,000)	9,303,000	36,636,000	6,594,000	5,622,000	31,086,000	12,699,000	101,940,000
Dwellings (Over $50,000)	4,710,000	21,717,000	1,620,000	4,635,000	15,036,000	7,812,000	55,530,000
Hotels	33,615,000	95,874,000	31,710,000	19,035,000	160,824,000	52,635,000	393,693,000
Hospitals	13,620,000	88,770,000	4,980,000	17,448,000	61,395,000	42,825,000	229,038,000
Industrial	37,770,000	115,089,000	7,191,000	13,698,000	178,050,000	40,569,000	392,367,000
Office Buildings	39,303,000	222,441,000	12,426,000	36,039,000	103,359,000	75,051,000	488,619,000
Public Buildings	8,103,000	51,981,000	4,911,000	12,666,000	51,510,000	57,930,000	187,101,000
Schools	79,335,000	263,784,000	27,291,000	51,687,000	229,641,000	75,120,000	726,858,000
Stores	15,630,000	45,030,000	4,965,000	6,708,000	41,685,000	23,220,000	137,238,000
Theaters	24,450,000	36,495,000	4,944,000	8,484,000	40,512,000	21,096,000	135,981,000
Welfare (Y.M.C.A., etc.)	1,353,000	18,417,000	1,305,000	6,171,000	15,096,000	14,298,000	56,640,000
Total Value of New Buildings	$418,347,000	$1,815,204,000	$179,859,000	$314,991,000	$1,617,591,000	$646,326,000	$4,992,318,000

1925 Prediction by Districts in 19 Building Classifications

What does a five billion dollar building year mean to the wide-awake and up-to-date gas man? First, it means that five billion dollars is a conservative estimate, because many buildings will not be reported where no architect is engaged and because few questionnaires or surveys are 100 per cent efficient. Therefore, there is more than five billion dollars of building to be done in the United States in 1925.

Next, we can conservatively estimate that at least three billion dollars of this construction cost will be spent in territory now served by the manufactured gas industry. Of this amount a reasonable estimate of the piping cost alone amounts to fifteen million dollars. And what of the prospective gas business to be had in these buildings that are planned and carried to completion each year in this country? A cursory examination of the types listed instantly reflects "if it's done with heat you can do it better with gas."

Space heating is a necessity in every classification; water heating in practically all types; domestic or commercial cooking is required in homes, apartments, hotels and institutions; regular and emergency lighting must not be overlooked—it is a function of our industry that we are prone to give up too easily. All of these, including small manufacturing and regular industrial applications, constitute only a portion of the prospective business that can be found in such a building program.

Should Public Service Companies Advertise Appliances?

CHARLES T. AARON

JUST what is the public interested in reading about the gas business? Have we the right picture when we buy space in newspaper and other mediums to get over our message?

There is still a certain section of the public who do not have the highest regard for the public service companies. They would rather read a vindictive attack by a city editor or some garrulous politician than most any message over the signature of the company.

Some of this feeling has been handed down from days of old. Too long for the good of the present-day gas man, seeking to break down resistance in his community, was this ill feeling allowed to go on, even after the appointment of public utility commissions. The commissions today are more tactful and efficient and the attitude of the industry more inclined to cooperate with them. Fortunately for all, this change has come about, but the dark brown taste is still there.

The public is interested in our business, if put to them in the proper light. We have the greatest public utility on earth, and, with the era of househeating by gas just ahead, why keep quiet and hide our light? Brush away the cobwebs of mystery that have been built up around the industry by helpful thoughts put over in print.

The greatest medium for this approach is the newspaper. Space wisely taken and filled with the proper material is the golden opportunity to correct the evils of the past.

In most communities there are two to seven daily newspapers. Let us consider, say, a city of 75,000 population with four daily papers. Many gas men in the past figured they could play no favorites and must take equal space in each paper to keep on the right side of the editor. There was a lot of truth to this idea in some cases, for news detrimental to the welfare of the local company was, and still is, given too much newspaper circulation and devoured with relish by a percentage of the public.

Granting that it was necessary to buy a certain proportion of space to keep good will, did the gas man make the most of his opportunity in utilizing this white space? He did not! The space he took was too often filled with bargains on ranges and other appliances. Often, in the rush of other duties, the preparation of copy was overlooked until too late and instructions were given to repeat the last issue. Think of it, money really spent for what we today are struggling to obtain—good will—used to compete with bargain counter sales instead of an illustration of what the use of gas would do for the betterment of the home life. The keynote to good will and better feeling for the company is adding to the peace and comfort of the home.

Thinking in Terms of the Customer

Analyzing the attitude of the public toward the gas company, we find them watching for the first of the month and the inevitable bill. Envelope in hand, the thought, either mental or spoken, is "Let's see what these suckers want this month." Antagonism right from the

first sight of the name in the corner of the envelope.

To this customer the monthly bill is a gouging process and that is all the company is in business for.

Here is where publicity of the proper kind comes to light. That customer thinks in terms of use of gas. To the industry the bill means 24 hours and 60 minutes to the hour, day and night, a

This?

readiness to serve. Do we get this over to the public in any of our transactions with them? We do not!

The public would like to know something about this. Why not tell them in the paper what gas service really is and what it means to be able to "turn on the gas and get results." Stay away from technicalities, tell the truth about our business in an interesting way, and the bill will not be such a shock.

Just as an example, here is the way Carl O. Breer of the Chrysler engineering staff presents the story of the Chrysler Six. He answers the question, "What pulls your car?"

"The open car weighs slightly more than 2,700 pounds," he tells us. "It travels twenty miles or more to the gallon of fuel. That means that a thread of gasoline one-sixty-fourth of an inch in diameter is pulling the car, for a gal-

or This?

lon of gasoline spread over 20 miles will form a thin line just one sixty-fourth of an inch.

"There is no metal wire of that diameter, even though it be made of the toughest, strongest known material, that could draw 2,700 pounds. You can see plainly what the engineer is up against when he attempts to lower fuel consumption, even if the change means only a mile more per gallon. An almost inconceivably small quantity of gasoline is pulling the car, and to lower that

amount is like splitting a hair with a paper knife.

"Now, in comparison to the gasoline consumed, consider the air that is used. We have figured that a pipe six and one-half inches in diameter and 20 miles long would supply the air used by the Chrysler while it is burning one gallon of gasoline.

"We do make the car run almost literally on air—air energized by a tiny line of gasoline. Perhaps some day we'll be able to widen that tube of air and thin out even more that fine wire of gasoline. But just at present we are doing pretty well to pull a 2,700-pound car 20 miles or more on a single gallon of fuel."

That is the sort of understandable, readable language in which the story of gas and gas service should be told.

And why must we continue to send out bills, usually of a color displeasing to the eye and therefore antagonizing at the start, filled with meaningless figures to the average consumer? Why not a change in set up and color, somewhat along the form below:

February 1, 1925.

John Jones,
15 Clay St.,
Blanktown, Ill.

To Blanktown Gas Company, Dr.
For Services Rendered and Gas Consumed
@ $1.10 per 1,000 cu. ft. $3.30
Statement of Meter ....1/3/25....326,000 cu. ft.
12/1/24....323,000 cu. ft.

A bill on nice white paper would go a long ways toward getting over the idea of service if rendered in this form.

If it is felt that stickers must be attached to the gas bill, then make that sticker one of good will and not an endeavor to sell some appliance. Try selling the idea of what an appliance can accomplish and they will follow through with a purchase even if price is omitted —which it should be—from the sticker.

Where the Public Goes to Buy

We use newspaper space mainly to sell the public what we have in appliance sales. The public do not readily read our advertisements, because they do not look on the utility company as merchandisers. There are isolated instances where certain companies have made notable records in appliance sales, but these have been mainly because of solicitation, and not because of advertising.

Concrete evidence of this lies in the relatively small number of sales made on the floor. It is also attested to very strongly by the number of appliances sold by dealers in various cities. The advertisements of department stores and furniture stores are scanned daily from a point of price comparison, etc., by the public, but not the gas company advertisement.

If further proof were needed that the public do not look on the utility as merchandisers, it lies in the small number of sales made on the floor in spite of the endless stream of people entering to pay bills each month.

Our mission in the newspaper is not the direct sale of appliances, but the spreading of the gas idea. Let us teach the public who we are, what we are striving for, and particularly what can be done with our product toward increasing comfort in the home and factory. Selling ourselves in this manner will do more than trying to sell 1,000 appliances.

If the gas industry, prior to the war with its upward trend of prices, had sold the public on the service idea, and had followed a campaign of education along the lines outlined here, the raise in rates would not have been received with so much disapproval. Changes of rates, and even the service charge, would have been easy to obtain because of the confidence of the public. Whenever the public realizes we are playing fair they are our friends.

American Notes

By a Representative of the British Commercial Gas Association

ETHEL M. WOOD

Continued from the February Issue

Ethel M. Wood

THE charge of undue conservatism cannot be made against the average American man of business so far as office administration is concerned.

The training of staff, especially those likely to be brought into contact with the public, is generally recognized as most important.

The arrangements in one city in particular impressed me as showing great vision, wisdom, generosity and common sense. Most careful attention has been given to this subject, special courses of a practical nature having been arranged at a local university solely for the gas company's employes.

Every employe who comes into contact with the public, however cursorily, is especially trained to some extent, right down to the street foreman, who has occasionally to go into the houses to connect or disconnect gas.

The courses of instruction cover three winters and occupy about four hours a week of office time, and the prospectuses are worthy of careful consideration. The primary object of the whole system is to improve the staff's methods of handling the public.

Bills are rendered monthly. So far as I know, this is universal. This, I think lessens complaints, because people have not forgotten about their consumption of gas as they are apt to do after a lapse of three months.

In many cities where there is only one office, arrangements are made with the druggists' stores (which are a sort of universal provider in the States), department stores, etc., so that customers can pay their gas bills there. Sometimes a small commission is paid by the gas company, but even where this is not done, the storekeeper is glad to have people brought into his premises, and there are many small ways in which an arrangement of this kind can be made a basis of goodwill.

Administrative methods in connection with both accounts and complaints vary tremendously. In Boston a most interesting experiment is being made in the treatment of "adjustments" (the word "complaint" is taboo in the company's offices).

Six men are located in a small room with a telephone apiece; if a customer calls up with any query, she is at once put through to this room, and the man who takes the call is definitely responsible for following up the point raised, seeing that it is met, and finally phoning the customer to make sure that everything is satisfactory. Similarly with personal calls, the "employe" who interviews is responsible in the same way as the staff handling queries by telephone, and new applications and "adjustments" are kept carefully apart like the sheep and goats, some waiting and questioning being inevitable with the former, which, it is felt, has an undesirable psychological influence on the person with a grievance.

After leaving these departments, I went (unknown to them) to the telephone exchange and listened in for some time; I was very much impressed with the

courtesy, quickness and good humor of the staff. The system appears to be both efficient and economic. It had only been in force something like six months, and though the company is very pleased with the results, it is regarded as being still in the experimental stage.

A Fine Conception of Civic Duty

The Consolidated Gas Company of New York maintains an emergency wagon service which represents a very fine conception of civic duty. The service originated from the company experimenting with and perfecting a costly mechanical restorative appliance known as the "pulmotor" and giving educational service with it to hospitals, etc.

Five stations are now maintained in different parts of the city, which are open day and night, the staff working in three shifts of eight hours, three men to a shift. Every fire call in its neighborhood is received by a station, and its wagon dashes out like a fire engine and works directly under the orders of the O. C. of the fire brigade. The wagons are equipped with the "pulmotor" and oxygen tubes, complete outfits for repairing, digging, etc., etc. In addition, they are frequently called by hospitals, police, etc., to resuscitate accident or suicide cases, no charge whatever being made in any of these emergencies.

Not long ago it was found that the emergency wagons were frequently being called for in cases of childbirth, but this has been considered as outside the scope of the gas company's activities, and discouraged. The service is stated to cost the company $40,000 a year, which would appear to be a very conservative estimate.

Ready for the Unexpected

As regards publicity, no co-operative advertising being placed through the A. G. A., every company naturally handles its own, sometimes through an agency and sometimes through a publicity department in the office. The A. G. A. Publicity Department supplies a monthly service of thirteen advertisements complete with matrices, etc., eight on commercial aspects and five on public policy, nine of the series being illustrated. A gas company is charged 5 dollars monthly for this service, and many of them make use of it, slightly altering the copy so as to make it specially applicable to their local conditions.

The advertising of the British industry is, I think, on quite as high a level as that of the American, while the cooperative advertising put out by the B.C.G.A. gives it a great additional strength and value. Personally, I consider the press advertisements of some of the big British gas companies better than anything put out by the American companies.

On the other hand, greater care is taken in the States with the appearance and quality of supplementary matter, such as leaflets, booklets, circular letters, cooking recipes, and so forth. The American advertiser is undoubtedly much more alive to the value of the *quality* of the matter he distributes than is the English trader.

Window displays are better than in this country; there is more originality and variety, but all the same there is plenty of room for improvement. The actual performance of work in the window is rare except in one or two places, and there can be no doubt as to its power to attract attention.

Considerable use is made of the radio in connection with home service. The possibilities of wireless are better appreciated in America; for instance, in some country districts the local bank has established a station and gives out financial items of news during business hours, providing entertainment of a general kind in the evening.

Blatant advertising would not be permitted, but in Chicago the transmitter is actually installed in the gas company's office, and Mrs. Anna Peterson gives a talk on cooking every morning, her position being announced, so that the gas company is quite definitely linked with this daily service.

It is quite impossible for me to describe the kindness and generosity with which my request for information in certain aspects of the Peoples Gas Light & Coke Co.'s activities were responded to. I was not only given the fullest opportunities for personal investigation, but Mr. Purcell, vice-president in charge of sales, specially provided dossiers and exhibits covering so much ground and giving such detailed information that, in fact, he has prepared a report infinitely more valuable than anything I should have been capable of producing.

Cultivating the Industrial Field

Although at present the domestic business absorbs 80% of the gas output, the company looks to the industrial field for the most remunerative new business in the future, and is deliberately endeavoring to foster it so as to make it the larger of the two.

The cultivation of this field has gone far beyond endeavoring to substitute gas for some other fuel in existing processes. The crucial factor is recognized as being not so much what the fuel costs, as what it costs to use it, which involves consideration of every detail of manufacture, establishment charges, time sheets, transport, etc., etc. The painstaking investigation of these details often means the reversal of the apparent results of cost comparison.

For instance, experiments to perfect gas-fired brass melting furnaces have been in progress for five years. Although the cost of the gas was successfully reduced, the shrinkage of the metal was so great that competition with other fuels was impossible.

A method of applying gas to the melting process with the brass contained in a bottle crucible which prevents the loss of the zinc has recently been found, and it is confidently hoped that this lucrative field will shortly be open to gas.

Another advantageous feature looked for in the industrial field is the seasonal production of certain products, which would interlock with the domestic consumption as central househeating by gas is developed, and so help to solve the problem of the peak load in that direction.

The very close linking up of the gas maker, the gas appliance makers, and the manufacturers of other products is striking, but generally speaking, the driving force in this research work seems to come from the gas company.

The New Business Department corresponds to what, for instance, is termed the Special Service Department in the Gas Light and Coke Company of London, but it lacks the intensive individual propaganda which is so interesting a feature of that service.

Indeed, I did not see anything in America that to my mind possesses the dramatic vitality and the extreme individualism of the Special Service work, and the activities of the New Business Department may perhaps be more accurately compared to the work of men cul-

tivating new business from local offices in London.

Customer ownership, mainly in connection with public utility companies, is now fully recognized and accepted in America, although it has only been in active operation about ten years; I spoke to a large number of business executives about it and only one expressed anything but whole-hearted endorsement of the system.

The inception of the movement was due to the necessity of getting money for the constant expansion of utility organizations. It is obvious that capital cannot be provided from the revenues collected by utility companies for services rendered, and many of them were so harassed during the war years that I was told customer ownership would have been tolerated as a financial measure even if it had exercised an unfavorable influence on public relations.

Although it must be regarded as a supplementary rather than as a primary method for producing capital, it has opened up a very considerable field for this purpose; but its phenomenal success has been due to other features, largely unforeseen at the commencement, which have proved so important and beneficial in their influence that they rank alongside, if not ahead of, the original financial motive.

Economics Taught by Practical Means

The general conditions governing public utility companies and the public they serve are, after all, very similar on both sides of the ocean. The differences concern details, not principles.

Commercial organizations are commingled in the same way with services essential to the very life of the nation; there are the same inevitable monopolies with the admitted justification for control by public regulation, the same demands for public ownership or confiscation, the same criticisms of the companies based mainly on the human dislike of paying for things—(always greater when the demand relates to something already used than to an unsatisfied want!).

There exists also the same general ignorance of fundamental economic facts, of financial machinery, and of the inexorable operation of law in economic as in other spheres; while the political agitator, the uninformed sentimentalist, and the mere hot-air merchant are certainly no less impassioned, voluble and inaccurate in the United States than they are in Hyde Park.

It therefore seems not unreasonable to argue that what has proved overwhelmingly successful in the one country will be at least reasonably so in the other.

The great difficulty would be to induce managements to make the experiment. Once that was done they would, of course, judge by results, and I am convinced the result in England would be the same as it has been in America, where, faced with complete skepticism, the pioneers have more than justified the faith that was in them.

In 1914 only seven companies could be induced to sanction a customer-ownership campaign in the States, and it was not until 1919 that the new recruits during the year could be numbered in double figures. This was due, I am told, not to caution, but to such complete indifference that the progress and results of the experiment were simply ignored. In 1914, 92,000 shares were sold under customer-ownership; in 1923, 1,806,300.

It is generally conceded that the trade unions have not so powerful a hold on industry, as a whole, in the States as they have over here. Trade union opposition to customer-ownership has been encoun-

tered in America, but does not appear to have been general or prolonged.

In England, unless the trade unions can be won over to customer-ownership (and this would be difficult), they would be almost forced to oppose a development which would so obviously stabilize a social system which many of them definitely disapprove of, and undermine their hold on the blind obedience of their members, for responsibility has a most sobering effect, and responsibilty follows quickly on the heels of ownership. Organized opposition might manifest itself by a refusal of the staff to act as salesmen, and this would strike at one of the roots of the whole policy. The machinery necessary for selling shares by an independent force would not only increase expenses to an unwarrantable extent, but would kill the spirit of the movement and deprive the promotors of one of the best results of the enterprise.

A Benefit to All Classes

This seems to me the greatest danger in the path, but on the other hand, in industries where the relations between management and workers are generally satisfactory, I believe the unions would do themselves irreparable damage by attempting to wreck a movement so full of benefit for the very people who provide the memberships of the unions.

The general public would, of course, require educating, but the facts given simply are so convincing that it is unlikely response would be unduly slow or expensive. Roger Babson has estimated that there is less than one-fifth the risk in public utility stock than there is in industrials, and about one-fifth of that in railroads, while the average net earnings of these three classes of securities over thirty years are

Railroads	4.5	per cent
Industrials	7.8	per cent
Public Utilities	8.45	per cent

Such facts, combined with the fierce light of constant publicity in which all utility companies live, and the control maintained by legislation, create well-founded confidence. What *can* be done in England to widen the range of possible investors through definite selling efforts was shown by the war loan campaigns.

Suspicion and ignorance are the worst enemies of all efforts towards cooperation, and one of the best factors of this movement is that it necessitates a better knowledge and understanding of the company's aims and methods by both the staff it employs and the public it serves.

A most useful feature of customer-ownership from the public relations standpoint is the sustained interest of such share-holders. Their small investments to them are a vitally important matter, and once they have something at stake in the company's fortunes they follow its development and methods with great zest.

I have not forgotten how greatly conditions in the United States differ from those we are accustomed to; but in spite of those differences, and other difficulties in the path of customer-ownership in this country, I am convinced that its introduction in England would be a national blessing.

Large scale financial operations can only be successfully carried on where confidence exists in the character and ability of the men who are managing the enterprise.—A. E. FITKIN.

Automatic Shut-offs Condemned in Massachusetts

THE Commonwealth of Massachusetts, on April 10, 1924, adopted a resolution providing for the investigation by the Department of Public Utilities relative to the use of automatic devices for shutting off the supply of gas from buildings. The Department of Utilities, under the resolution, was instructed to determine "whether or not, in its opinion, there are in the market practical safety gas valves, or other devices, by means of which the supply of gas to a building can be shut off automatically, so as to prevent or retard the escape of gas in case of fire, the approximate or probable cost of installing and maintaining such devices and the conclusion of the Department as to the desirability of requiring by general law the use of such devices."

The Department of Public Utilities, after holding public hearings on the subject and requiring certain experiments to be made by engineers, made a report to the Senate and House of Representatives of Massachusetts on January 14, 1925, in which they reviewed at length the claims made by the manufacturers of these devices, and presented their conclusions as to the result of their investigation into these claims.

The report states, "There are, broadly, two contentions of those advocating the compulsory use of automatic shut-offs: First, that it would save fire losses and that it would prevent the spread of fire by shutting off the gas which would otherwise become ignited after the metal was melted off; second, that it would prevent asphyxiation of firemen or occupants of buildings through the escape of gas after meter or connections have been melted off."

Referring to the first contention, the report says, "Many cases were cited at the hearing where fires were increased by escaping gas. A study of these and other cases indicates that in most of them the increased fire was on floors above the meter, due to broken or melted pipes, and where an automatic gas shut-off would not have helped in any way."

Referring to the second contention, the report says, "During 1923, ten accidental deaths by asphyxiation were reported as due to defective or disconnected tubing, and up to the month of October, 1924, there were six more deaths. During neither of these years were there any reports on deaths which could have been prevented by the use of automatic shut-offs. At the hearing (before the Department) mention was made of firemen and others being overcome by gas at fires. No specific case was brought to our attention, nor were we able to discover one, where it was apparent that the use of this automatic appliance would have helped the situation."

The report further says, "We appreciate the importance of conserving human life, upon which much stress was laid at the hearings, but no case of loss of human life was brought to our attention, nor have we discovered any in records examined which could have been eliminated by these automatic shut-offs."

After reciting the lack of necessity and the general undesirability of the use of these devices, the report states, "The next question to be considered is whether the automatic shut-off will create possibilities of greater dangers than those eliminated" and presents the following reasons that danger will attend the installation of these valves.

First—"We have already referred to the fact that the automatic shut-off will

operate only when the fire is near the meter, and that only a small number of fires are of that nature. When there are such basement fires, it is often desirable to have the gas on the upper floors for a certain period of time to give light in order to allow the firemen to work or for people to get out of the building. It would seem much better to leave the time of turning off the gas in such cases to the fire chief, in order that it would be done at the proper time and not too early."

To substantiate this claim they quoted the following from the report which the Board of Gas and Electric Light Commissioners made to the Massachusetts Legislature in 1916: "It is essential that the official in charge of the fire shall have absolute command for the shutting off of gas in the building, and that this should not be settled for him by the chance of the fire or heat reaching the closing device."

Referring to Professor Norton's report to the Board of Gas and Electric Light Commissioners, which was included in their report to the Legislature in 1916, which stated, "There is some doubt, however, in my mind, as to whether, after prolonged use, with probable collection of sediment or naphthalene or the products resulting from corrosion of the pipe or valve, the valve will operate satisfactorily. It would seem probable that after a lapse of a number of years there would be some question as to the positiveness of its action." On this question the report of the Department of Public Utilities states, "Here we find a real danger which would seem to offset any possible elimination of other dangers by the use of these devices. With imperfect operation, lighted burners or jets would go out, as there would not be sufficient gas to keep them going, but a small amount of gas would still continue to escape through the open burners or jets, and in time cause a very dangerous situation from the standpoint of asphyxiations."

The report quotes rather extensively from the report of the Board of Gas and Electric Light Commissioners, which reported adversely on automatic valves in 1916; from the U. S. Bureau of Standards' letter on the subject of the undesirability and hazard attending the installation and use of automatic devices on gas service lines, and from the rules of the National Board of Fire Underwriters, which do not recommend the automatic operation of these valves.

In conclusion, the report says in part, "It is the opinion of the commissioners of this Department that there are not in the market safety gas valves or other devices sufficiently practicable to warrant the desirability of requiring by general law the use of such devices."

Pipe Standards

To the Members of the Association.

YOUR Committee on Cast Iron Pipe Standards desires to know the experience to date of each company that has used the No. 2 (formerly "B") bell for cast iron pipe. This experience, brought up to March 1, 1925, should be sent to me on the form indicated below.—WALTON FORSTALL, *Chairman.*

(1) Name of Company .....
(2) Size of pipe.....Length of line..... Kind of joint.....
(3) Date laid.....No. of leaking joints to date.....
(4) Remarks .....

(The above record should include every line laid with the No. 2 bell (2), (3) and (4) being repeated for each separate line of pipe.

Applying Stage Effects to Window Display

PAUL C. WILSON, Kings County Lighting Company, New York, N. Y.

THERE are, to my mind, just two practical types of window displays for gas or other appliances.

One is the realistic type; it shows the appliance actually in place in the apartment that it would occupy in a home. Household appliances being the object of display, the problem should be attacked from the point of view of the interior decorator, *plus* the judicious but sparing use of advertising copy on show cards sufficient to get the necessary facts, not obtainable at a first glance, across to the public. The room represented in the display, even though it be but a bathroom or kitchen, should be planned as tastefully and attractively as possible, and yet show the utmost convenience with practical use of the equipment displayed.

Everyone, young or old, civilized or savage, responds strongly to color, and one of the best methods of attracting attention is by the bold and lavish but well-planned and harmonious use of color.

The era of dead white and dazzlingly enamelled household effects is rapidly passing out of favor. People no longer want their kitchens to look like operating rooms in a hospital. By the use of colored paints and enamels, washable ginghams and other fabrics pleasant and practical, kitchens can be evolved that, together with modern appliances, will make the housewife's labors a joy instead of unpleasant drudgery. Then, too, a color scheme can be chosen that will enhance the appearance of the range or other appliance shown and so increase its value in the eyes of the spectator. This type of display not only gives the public ideas

A "Decorative" Window with Special Lighting Effects

for arranging their homes, but also presents the appliance under the most favorable conditions.

The other type of window display is *decorative,* and the scene pictured therein is treated in a conventional and decorative manner. This type of display, however, must convey a definite idea that will tie up with the appliance to be displayed, and must also furnish a convincing proof of the necessity and desirability of ownership of the appliance displayed. It is useless to provide a beautiful background of draperies or other materials and then stand your appliance in the foreground without any connection between the two or without having a definite idea or story to put over.

A window display is like a room, a painting, or any other composition. It must have a definite center of interest with all else subordinate and leading up to or strengthening the central idea. Otherwise the eye will not be held long enough to convey the impression to the brain, and the spectator passes on, either not interested in the display at all, or at most retaining but a hazy notion of what it is all about.

The subject of lighting is too big to go into very deeply here, but I want to emphasize the fact that adequate lighting is of supreme importance both for attracting attention at night and also for illuminating the display in an adequate and artistic manner. I have installed some real stage lighting equipment recently in my windows and find it is very successful and more flexible of operation than the regular window lighting equipment.

Summing up: the utmost simplicity of design, with as few objects as possible in the display, and a good use of color and adequate lighting—these are the goals to aim for in good window display.

An Example of "Realistic" Window Display

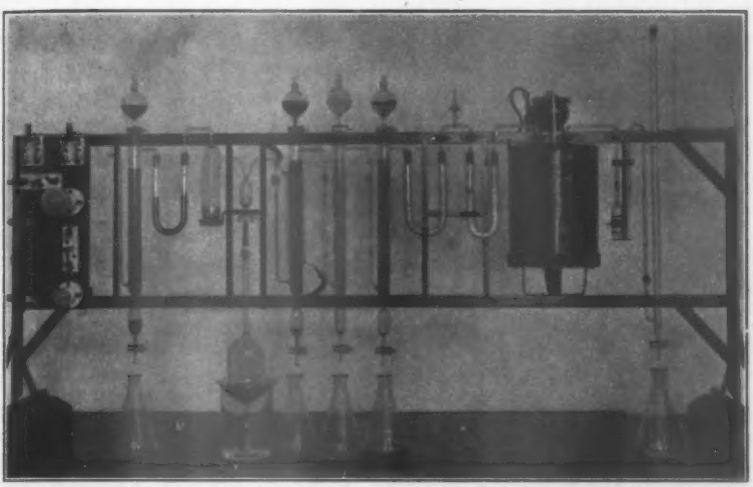
In Memoriam

Alfred W. Fussey, Standard Peninsular Brass Works.
John W. Golden, Savannah Gas Co.

Testing Laboratory Gets Iodine Pentoxide Apparatus

Accuracy is Big Feature of New Device

CURT GEORGE SEGELER



For Determining the Presence of CO in Products of Combustion

FURTHER progress on the new testing laboratory of the Association, which it has been decided to establish in one of the buildings of the East Ohio Gas Company, Cleveland, Ohio, has been reported by the committee in charge of this work.

Testing apparatus, which is being prepared under the supervision of the Bureau of Standards at Washington, is nearing completion and is soon to be installed.

Among the first is an iodine pentoxide machine which has recently been adopted by the Bureau for use with flue gas analyses and for determining the presence of carbon monoxide in products of combustion. According to the Bureau of Standards, it takes 20 minutes for a complete analysis of the flue gas from an appliance by the iodine pentoxide method. The life of the reagents depends upon the amount of reagent employed. While its cost is initially high, the cost for each analysis is negligible.

Although the method is slow, the iodine pentoxide apparatus is one of the most accurate agencies for this purpose that science has developed.

In analyzing flue products for their various constituents by volumetric methods, one is likely to be misled by the results obtained when the quantities involved are very small. This is particularly true in the analysis of carbon monoxide when such an analysis is intended to be a criterion of the completeness of combustion of the gas.

Quantities of carbon monoxide over two-tenths of a per cent can be detected fairly well by volumetric analyses using

the customary Orsat or Elliott apparatus and provided that the chemicals are all fresh. However, quantities below two-tenths of one per cent, which is the lower limit of accuracy of these appliances, may be quite important when dealing with room heaters or other domestic appliances.

Such small quantities of carbon monoxide, that is upwards of .001 per cent, can be accurately analyzed by means of the new iodine pentoxide apparatus.

This apparatus utilizes the well-known reaction of iodine pentoxide with carbon monoxide, resulting in the liberation of free iodine and the oxidation of the carbon monoxide to carbon dioxide as shown in the equation $I_2O_5 + 5CO = I_2 + 5CO_2$.

The flue products to be analyzed are passed through a train of purifying towers containing respectively hot chromic acid, which removes any traces of illuminants which might be present in the flue gases, and then through towers of sulphuric acid, which dries the gases, consisting now only of carbon dioxide, carbon monoxide, oxygen and nitrogen.

It is necessary to remove every last trace of water vapor, because the active chemical, iodine pentoxide, reacts with water vapor to form iodic acid, which in turn slowly decomposes under the action of the heat and liberates some iodine, which would spoil the analysis. The partially dried gases from the sulphuric acid tower are passed through a "U" tube containing soda lime, which removes most of the carbon dioxide, although this is not an absolutely necessary step. The final drying is accomplished by passing the gas through phosphorus pentoxide, which is the most powerful drying agent known, and absolutely dry gas is the result.

The gas has now been sufficiently purified so that we can allow it to react with the iodine pentoxide, which is in another "U" tube immersed in an oil bath kept at 315° F. If any carbon monoxide is present in our gas, it will react as indicated previously and the iodine formed by the reaction will slowly be volatilized out of the "U" tube, iodine being very volatile above 100°.

The iodine distils over into a Gomberg bulb filled with a ten per cent solution of potassium iodid. The Gomberg bulb is a special absorption tube fitted with ground glass joints so that it can easily be removed and the iodine solution rinsed from it. No grease may be used to lubricate the ground joints by which the bulb is attached, because iodine vapors are very soluble in grease and some might be lost if any grease were used.

After a sample has been passed through, an automatic valve changes the flow of the gases through this apparatus and admits air. The air is passed through exactly the same treatment that the gas has been subjected to and in addition is made to go through the tower containing activated carbon, which is intended to remove any reducing agents which might accidentally be present in the air.

This so-called "purging air" sweeps the last trace of gas which might be lodged in various corners of the apparatus ahead of it, and thus insures a complete analysis of the sample. The air also helps to complete the distillation of the iodine, and, when no more of the latter comes over, the chemical operation of the analysis is finished. The Gomberg bulb is disconnected after the pressure in the train has been equalized. The solution is rinsed into a flask for titration with standardized sodium thio-sulphate.

The amount of iodine determined by titration is proportional to the original quantities of carbon monoxide present in the gas, and the calculation of the weight of carbon monoxide originally present in the sample becomes a matter of elemen-

tary arithmetic. The initial sample used is large so that the chances for error are correspondingly reduced. For comparable results it is customary to reduce the findings to an air-free basis thus making the analysis independent of any excess air which might happen to be present. A final step is to calculate from the air-free percentage of carbon monoxide the cubic feet of carbon monoxide produced per hour.

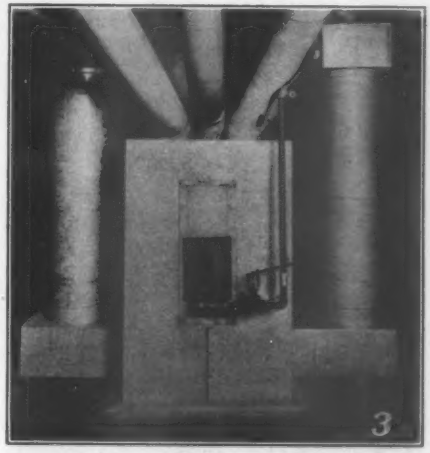
The importance of this figure can be readily realized if we consider two appliances such as a pressing iron and a water heater, the former burning 4 cubic feet of gas and the latter 50 cubic feet of gas. The flue products as analyzed might show 10 per cent air in each case and one-tenth of a per cent of carbon monoxide. On the air-free basis they would show approximately two-tenths of a per cent of carbon monoxide, but, because the iron only burns one-twelfth the quantity of gas that the water heater burns, the total production of carbon monoxide in cubic feet per hour will be vastly different in these two appliances. On the basis of the figures given the iron would produce about .04 of a cubic foot per hour. The water heater would produce .12 cubic foot per hour.

Gas Sales in Gascoland

GAS consumption in Portland, Oregon, continues at a record-breaking pace, according to figures just made public by the Portland Gas and Coke Company. In the househeating and industrial fields the sales of gas have increased at a remarkable rate.

The largest users of gas for industrial purposes are the hotels and restaurants, which consume more than 297,000,000 cubic feet annually. Bakeries use more than 55,000,000 cubic feet a year; coffee roasters, 14,000,000 cubic feet; newspapers and printing plants, 29,000,000 cubic feet, and annealing and coke ovens in iron works, 13,000,000 cubic feet.

Use of gas in househeating has shown the greatest increase since 1917. Consumption in this field in 1916 was only 1.9 per cent of the total consumption; in 1917 it was 3 per cent, and for the year ended September 30, 1924, it was 22.1 per cent. Househeating sales for 1924 almost equalled all the gas sold in 1908. It was more than 27 times the amount consumed for househeating in 1916.



A Gasco Furnace in Use

During the last eight years about 2400 Gasco furnaces and heaters have been installed in homes. There are 1,800 other furnaces and heaters in use. Latest reports show that the company has a total of 11,500 heating appliances on its lines, or an average of one appliance to every five homes. The first Gasco furnace built and installed eight years ago is in operation today.

Portland was one of the first cities, if not the first city, in the United States to use gas for househeating. It was the first to establish a special rate for househeating. The company has 5,000 stockholders in the Portland territory.

Statistics Given Publicity

MAKING MORE GAS THAN EVER

Public Utilities Companies Report High Record

NEW YORK, Jan. 9—Sales of manufactured gas in 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

Now customers connected to the lines

New Record for Gas Consumption

Increase of 20 Billion Cubic Feet Noted During Past Year.

NEW YORK, Jan. 9—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported. Approximately 1,000,000 ranges, 4,500,000 water heaters and 500,000 space heaters were sold and connected in 1924, the estimate of gas company merchandising sales being in the neighborhood of $50,000,000, or at the rate of $5 a meter. A factor largely responsible for the greatly increased sales of gas was the growing demand for the product in industry.

405,344,000,000 CUBIC FEET GAS SOLD IN U. S. IN 1924

Sets New Record—Demand from Industry Growing.

New York, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported. Approximately 1,000,000 ranges, 4,500,000 water heaters and 500,000 space heaters were sold and connected in 1924, the estimate of gas company merchandising sales being in the neighborhood of $50,000,000, or at the rate of $5 a meter. A factor largely responsible for the greatly increased sales of gas was the growing demand for the product in industry.

NEW HIGH RECORD IN GAS SALES

Companies Add 440,000 Customers in 1924, Making Giant Total

New York, Jan. 9—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

Makers of Gas Report Year's Sales Growth of Billions of Cubic Feet

Total of 405,344,000,000 an Increase of 20,000,000,000.

Industrial Use Gains.

NEW YORK, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported.

More Than 10,000,000 People Now Served by Gas Companies

New York, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

YEAR'S GAS SALES MAKE NEW RECORD

National Association Reports Increasing Use of Product by Industries

NEW YORK, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported.

CONSUMPTION OF GAS SHOWS BIG INCREASE

New York, January 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public to-day by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of December 31, 1924, the association reported. Approximately 1,000,000 ranges, 4,500,000 water heaters and 500,000 space heaters were sold and connected in 1924, the estimate of gas company merchandising sales being in the neighborhood of $50,000,000, or at the rate of $5 a meter. A factor largely responsible for the greatly increased sales of gas was the growing demand for the product in industry.

GAS CONSUMPTION HIGH

Sales of Manufactured Product Establish New High Record.

NEW YORK, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported. Approximately 1,000,000 ranges, 4,500,000 water heaters and 500,000 space heaters were sold and connected in 1924, the estimate of gas company merchandising sales being in the neighborhood of $50,000,000, or at the rate of $5 a meter. A factor largely responsible for the greatly increased sales of gas was the growing demand for the product in industry.

INDUSTRIAL GAS USE MAKES NEW RECORD

405 Billion Feet Consumed in Last Calendar Year.

Sales of manufactured gas during 1924 by public utility companies in the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of December 31, 1924, the

SALES OF GAS IN 1924 BREAKS ALL PREVIOUS RECORDS

NEW YORK, Jan. 9.—Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers connected to the lines of gas companies last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924, the association reported. Approximately 1,000,000 ranges, 4,500,000 water heaters and 500,000 space heaters were sold and connected in 1924, the estimate of gas company merchandising sales being in the neighborhood of $50,000,000, or at the rate of $5 a meter. House heating installations are being made at the rate of about 10,000 a year.

Reports filed with the association by [illegible] gas companies show that

GAS SALE RECORD BROKEN.

Last Year's Consumption 20 Billion Cubic Feet Over 1923.

Sales of manufactured gas during 1924 by the public utility companies of the United States amounted to 405,344,000,000 cubic feet, according to preliminary statistics made public today by the American Gas Association. This establishes a new high record for gas consumption and represents an increase of 20,000,000,000 cubic feet over 1923, and an increase of 100,000,000,000 cubic feet in the last six years.

New customers last year numbered 440,000, making a total of 10,240,000 gas customers as of Dec. 31, 1924. Approximately 1,000,000 ranges, 4,500,000 water

RECENTLY, through the splendid cooperation of our member companies, the Association was able to compile sufficient data on sales of gas, number of customers and gross revenue for the year 1924 to issue an estimate for the year on these items and release it to the press, January 15, 1925. We are proud to advise that the gas industry was the first to submit for publication statistics covering the year 1924.

Due to the timeliness of this release, the Associated Press immediately wired it to their 1,500 correspondents, and the story of gas progress was given splendid publicity in all States of the Union.

It is worth repeating that this achievement was made possible only with the cooperation of our member companies, and the purpose of this report is to emphasize, for the benefit of our members, the value of having statistics published promptly. The only purpose for which the Association gathers statistics is to help the industry, and, to be of the utmost value, they should be published promptly as possible.

We wish to acknowledge the co-operation which our members have given us in this work and hope that they will continue by promptly returning the 1924 Confidential Statistics Blank which was recently forwarded to them. It is our hope to compile the data from these latter annual statistical blanks in time to publish the complete 1924 statistics by April of this year.

Modern Types of House Furnaces

JOHN B. ALLINGTON, Rochester Gas & Electric Corp.

THE furnace illustrated in Fig. 1, showing the rear of the furnace, is distinguished from earlier types in that it has two combustion chambers. There are essentially two furnaces within one casing. The humidifier is shown on the rear. This consists of a fine jet of water impinging on a wooden block. Cold air from the return pipe carries a portion of the resulting mist into the hot part of the furnace where it is evaporated and the excess is drained to the sewer. No adjustment is necessary and, the amount of water evaporated being proportional to the circulation of air, it follows that on cold days, when a larger amount of water is necessary to maintain a proper relative humidity, the circulation being faster, more is carried into the furnace to be evaporated. A constant flow of 20 gallons of water per day, which costs 25 cents per month, maintains a constant relative humidity of 40-50 per cent in the house. Dividing the combustion chamber eliminated most of the burner troubles, and a further improvement was made in the casing.

Fig. 1. Installation in President Searle's Home

Fig. 2 shows a hot water boiler controlled by an electric motor operated gas valve actuated by an eight day clock thermostat in the living room. The customer merely winds his clock once every week and the heating system runs itself.

During the past year there has been a still further development of the hot air furnace. The combustion chamber is now made of a single casting with vertical flues in place of the former welded steel box. This has increased the capacity and improved the flue condition. The casing has been made stronger, better, and cheaper, and an equalizing bonnet has been added for the hot air offtake. The humidifier has been improved in appearance and is now made of zinc. These developments will undoubtedly go on and the furnace of the future may be cheaper and better, although no more efficient, as we have now reached the ultimate in practicable efficiency. The heat left in the waste gases is necessary to carry them up the flue.

Figs. 3 and 4 show one of the most recent hot air furnaces. Intensive studies of warm air distribution systems have been made, and in nearly every installation corrections are made in the existing piping to insure a proper distribution of the heat to the rooms. In the past, hot air heating systems have fallen from favor largely because of faulty installations and there are few coal-fired hot air systems now installed in which proper provision has been made for return circulation. Outside or cellar air is largely used, and return circulation from the

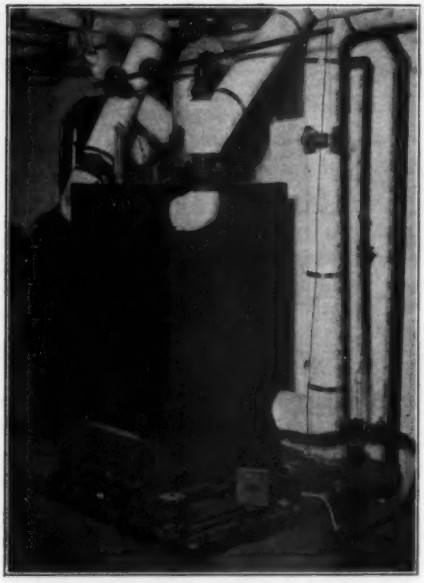


Fig. 2. Boiler Controlled by Electricity

rooms is nearly always inadequate even when installed. In these gas-fired hot air installations, returns from the rooms have been installed having a capacity equal to the total hot air output of the furnace.

Recent studies have been made of the use of a secondary return system to be used in living rooms to reduce the temperature difference between the floor and ceiling. Laboratory experiments show that this difference can be reduced 50 per cent, and a practical experiment along this line is now being tried out in the model house. In this case, return air is carried from the floor of the living room to the furnace exactly as in any other installations. The hot air pipe intersects the cold air return and is open to the cold air through a series of baffles in such a manner that the hot air supply, although not diminished in quantity, is diluted somewhat by the cold air just before it enters the register. The resultant larger volume of tempered air does not rise to the ceiling so rapidly and is more easily diffused in the room. The lower ceiling temperature, with no change in the temperature at the five-foot level, is a decided economy.

The furnace as now constructed consists of central combustion chamber and distributor, the radiator sections, the flue manifold and the outside casing. The combustion chamber and distributor is a single casting consisting of a burner box at the bottom, approximately 8 in. by 10 in. by 24 in. long, the only opening being the door for lighting and for the admission of secondary air for combustion. At the rear is a thin sheet steel plate lightly attached to act as an explosion vent for safety. From the top of this burner box rise six tubes or flues of elliptical cross-section carrying the hot burned gases to the box at the top which acts as an equalizer. These hot tubes have a decided flue effect on the burners and pull the burned gases away rapidly. From the distributor the gases pass into cast-iron radiator sections and are drawn down to a heavy cast-iron flue manifold from which they are discharged to the flue. Return air from the rooms is admitted at the bottom of the casing and, passing upward over the hot radiator sections and other castings, removes the

Fig. 3. Hot Air with Maximum Distribution

heat. Furnaces of different heating capacities are made by using the proper number of radiator sections or by enclosing two or more furnaces within a single casing. Control of the burners is effected by a solenoid or magnetically operated valve which is energized by the ordinary room temperature thermostat.

Fig. 4. Newest Development of Hot Air Furnace

OWN YOUR HOME AND PIPE FOR GAS

THE IMPORTANCE of gas as a utility in the construction and furnishing of the modern home will be demonstrated by many service companies, manufacturers and dealers in the gas divisions of the annual Own Your Home expositions to be held this spring in Chicago, New York, Philadelphia and Buffalo.

Strong gas appliance committees have been formed in each city to supervise the part played by this industry in connection with all the other industries represented, and the progress of gas during the past year will be shown in spectacular and educational displays. Some entirely new plans for presenting the latest improvements in gas burning devices, especially house heating equipment, have been made by all of these committees.

C. A. Luther, of the Peoples Gas Stores, is chairman of the Chicago Gas Appliance Committee; L. S. Bigelow, publisher of *Gas Industry*, of the Buffalo Committee; Stanley Grady, of the Roberts & Mander Stove Company, of the Philadelphia Committee, and Wm. M. Crane, of the Standard Gas Equipment Corporation, of the New York Committee.

The Chicago exposition will be held in the Coliseum, March 21-28, inclusive, under the auspices of the Chicago Real Estate Board. The New York exposition will be held in the 69th Regiment Armory, April 18-25, inclusive, under the auspices of the Real Estate Boards of the Metropolitan District. The Philadelphia exposition will be held in the Commercial Museum, May 9-16, under the auspices of the Philadelphia Real Estate Board. The Buffalo exposition will be held in the Broadway Auditorium, May 30-June 6, under the auspices of the Buffalo Real Estate Board.

VERMONT ADOPTS UNIFORM CLASSIFICATION OF ACCOUNTS

LAST MONTH we announced that the State of New Jersey Board of Public Utility Commissioners had adopted the Uniform Classification of Accounts for Gas Utilities for that state.

It is a pleasure to continue recording progress in this important work by advising our members that the Public Service Commission of the State of Vermont has also adopted the Uniform Classification. The gas companies in that state will be required to make their annual returns for the year 1924 on the basis of the new classification.

Affiliated Association Activities

New Jersey Gas Association

The mid-year meeting of the Association was held Friday, January 23, 1925, in the Assembly Hall of the Public Service Electric and Gas Company at Jersey City. The meeting was well attended, between 400 and 500 members and guests being present. The following papers were read at the morning and afternoon sessions:

"Keeping Ahead of the Demand in Distribution," F. A. Lydecker; "Selling More Gas in Home Laundries," Howard M. Bennett; "The Economics of Merchandising," Alfred P. Post; "The Industrial Gas Era," William M. Hepburn; "Why Closer Co-operation between Gas Company and Appliance Manufacturer Is Necessary," Harry Schall; and "National Sales Plan of American Gas Association," Robert Canniff.

Mr. Lydecker's paper, illustrated by slides, described unusual problems encountered by the distribution department of his company and the successful manner in which they were overcome.

Between the morning and afternoon sessions a novelty luncheon was served under the direction of Miss Ada Bessie Swann.

After lunch a complete thesis on "The Economics of Merchandising" was presented by Alfred P. Post. He was followed by William M. Hepburn with an illustrated lecture on "The Industrial Gas Era," which aroused considerable discussion.

Secretary-Manager Alexander Forward was unable to be present as he started that day for the Pacific Coast meeting, but was represented by A. Gordon King, service engineer of the A.G.A., who briefly described the activities of A. G. A. headquarters.

R. L. Burdick, the new secretary of the A. G. A. Commercial Section, was introduced to the meeting.

Illinois Gas Association

The Association will meet in Chicago on the afternoons of March 18 and 19 in conjunction with the conventions of the Illinois State Electric Association and the Illinois Electric Railways Association. There will be a joint session of the three associations on both mornings. The annual banquet will take place on Wednesday evening, the 18th.

Two new features of the joint convention will be a group luncheon on Wednesday at which time tables will be arranged for executives, accountants, engineers, etc. There will be a Utility Advertising Exhibit, which will show all the various advertising done by the utilities in the state.

The following program will be given during the sessions of the Illinois Gas Association:

March 18—"Why Gas Companies Should Secure Industrial Business," by a committee of Illinois Gas Engineers, consisting of G. H. Hirschfeld, Chicago, C. H. Kallstedt, Evanston, and F. F. Cauley, Chicago, chairman; "Relations with Architects," William A. Adams, Chicago; "Information Available through the American Gas Association," J. M. Roberts, vice-chairman of the Committee on State Representation of the American Gas Association; "Cost Analysis in Securing New Business," P. J. Naschold, Rockford; "Use of Small Trenching Machines," illustrated with moving pictures, A. G. Ford, Aurora.

March 19—"Hot Water in the Home," Glenn C. Carnahan, Chicago; "Bookkeeping Without Books," Stanley P. Farwell, Chicago; "House Heating With Gas," G. E. McKana, Chicago; "Use of Illinois Coal by Pier Process," M. P. Novak, Joliet; and "Use of Bituminous Coal in Water Gas Production," L. L. Gilliland, Chicago.

Wisconsin Utilities Association

The Nominating Committee of the Gas Section of the Association have nominated the following new officers for the coming year:

For Chairman, I. F. Wortendyke, New Gas Light Company, Janesville; for Vice-Chairman, S. B. Sherman, Wisconsin Gas & Electric Company, Racine.

GENERAL

CHAIRMEN OF GENERAL COMMITTEES ORGANIZED TO DATE

Accident Prevention—C. B. Scott, Chicago, Ill.
Amendments to Constitution—Wm. J. Clark, Yonkers, N. Y.
American Engineering Standards Committee Representative on—A. H. Hall, New York, N. Y. —(Alternate Representative) W. J. Serrill, Philadelphia, Pa.
Award of Beal Medal—H. C. Abell, New York, N. Y.
Chamber of Commerce of U. S.—J. B. Klumpp, Philadelphia, Pa.
Cooperation with Educational Institutions—W. G. Gribbel, Philadelphia, Pa.
Customer Ownership—Charles A. Munroe, Chicago, Ill.
Education of Gas Company Employees—B. J. Mullaney, Chicago, Ill.
Finance—James Lawrence, New York, N. Y.
Gas Code—W. R. Addicks, New York, N. Y.
Gas Standards & Service—J. A. Perry, Philadelphia, Pa.
General Specifications—A. H. Hall, New York, N. Y.
Geographic Sections—L. R. Dutton, Jenkintown, Pa.
Managing Committee of Appliance Testing Laboratory—R. W. Gallagher, Cleveland, Ohio.
National Fire Protection Association—R. S. Doull, New York, N. Y.
Nominating—R. B. Harper, Chicago, Ill.
Rate Structure—Ewald Haase, Milwaukee, Wis.
Representation on National Joint Committee of Public Utility Associations—D. D. Barnum, Boston, Mass.; H. L. Doherty, New York, N. Y.; A. P. Lathrop, New York, N. Y.; P. H. Gadsden, Philadelphia, Pa.; Charles A. Munroe, Chicago, Ill.; Wm. L. Ransom, New York, N. Y.; Alexander Forward, New York, N. Y.; H. C. Abell, New York, N. Y.; T. V. Purcell, Chicago, Ill.
Time and Place—R. B. Brown, Milwaukee, Wis.

Accident Prevention Committee

Wider Education Recommended

THE following are among the subcommittees that have been appointed:

Safety and First Aid Devices:
R. M. Jeffries, *Chairman.*
T. F. Holden.
E. R. Dobbin.
E. G. McCann.
M. I. Mix.

Statistical:
J. B. Douglas, *Chairman.*
E. R. Dobbin.
A. J. Van Brunt.
W. M. Carpenter.
A. G. King (Conferee).

Bulletins:
W. M. Carpenter, *Chairman.*
R. M. Jeffries.
T. F. Holden.
R. Buckminster.
M. I. Mix.

Reports:
C. B. Scott, *Chairman.*
J. P. Pulliam.
F. W. Fisher.

Medals:
A. J. Van Brunt, *Chairman.*
W. G. Rudd.
F. W. Fisher.

Resuscitation:
F. W. Fisher, *Chairman.*
A. J. Van Brunt.
C. B. Auel.

Operating Methods:
W. G. Rudd, *Chairman.*
T. F. Holden.
E. R. Dobbin.

It has been suggested that information with regard to the prone pressure method of resuscitation be more widely disseminated and that lectures be given to the fire and police departments in each town.

A proposal was recently made by the Surgeon General of the Public Health Service Department of Washington for the standardization of technique of prone pressure resuscitation. The Committee has replied with an offer to cooperate in any such work and to assist by submission of data or otherwise.

The necessity for keeping more comprehensive statistics on accidents was recently emphasized, and the use of the Association Service Bureau has been suggested for this purpose.

It has been voted by the Committee that the Statistical Sub-Committee of the Accident Prevention Committee be instructed to gather statistics relative to successful resuscitation from carbon monoxide poisoning, and as to the methods used.

Attention has been called to the necessity of company members educating the public in their communities regarding the correct use of gas appliances. For the preparation of a text covering this subject, a special committee has been appointed, consisting of Mr. Van Brunt, chairman, Mr. Carpenter and Mr. Mix.

The closer cooperation between member companies and national and local safety councils has been referred to a special committee to be known as the Committee on Cooperation with National and Local Safety Councils, consisting of Mr. Auel, chairman, and Mr. Scott.

It has been agreed by the Committee that a more comprehensive and uniform plan for keeping records on accidents in the industry should be developed. This has been referred to the Sub-Committee on Statistics of the Accident Prevention Committee with the request that the committee make a report recommending the best plans for procuring such records. Such report as to plans will be incorporated in the annual report of the Committee. It will be distinctly understood that all individual data submitted to the Association will be held strictly confidential.

The publishing of a general booklet on the prone pressure method of resuscitation in cooperation with the National Safety Council, the National Electric Light Association, and other organizations has been referred to the Sub-Committee on Resuscitation.

It has been agreed that a booklet with reference to the importance of personnel in reducing accidents should be developed.

It has also been agreed by the Committee that meetings of state associations and of certain national organizations should be taken advantage of for the presentation of subjects having to do with safety in the gas industry, particularly of resuscitation.

The Operating Methods Sub-Committee has been instructed to make an investigation and prepare a report designed to minimize operating hazards.

Mr. McCann has requested other members of the committee to send him copies of any safety rules in connection with gas generation, transmission and distribution which they may have.

THE HEADQUARTERS STAFF of the A. G. A. wishes to acknowledge with thanks the contribution of thirty volumes on gas technology and allied subjects which were recently added to the library as the gift of the Robbins Publishing Company, New York, publishers of the Gas Age Record and the Industrial Gas Magazine. The company is moving from its present offices at 52 Vanderbilt Avenue to roomier quarters at 9-11 East 38th Street.

Among the books received by the A. G. A. are missing volumes of the Proceedings of the Natural Gas Association, completing this set up to and including 1923; a collection of English Patents for Inventions, covering gas manufacture and distribution from 1855 to 1900; also Patents for Inventions on Gas Production and Application, 1681-1858, Westcott's "Natural Gas," Muter's "Chemistry," the Welding Encyclopedia, and a Bibliography of Gas Literature (1894) by F. S. Cripps.

ACCOUNTING SECTION

H. C. DAVIDSON, Chairman — DeWITT CLINTON, Vice-Chairman
H. W. HARTMAN, Secretary

MANAGING COMMITTEE—1925

ARMSTRONG, J. J., Toronto, Ont., Canada (Canadian)
BISCHOFF, W. H., Savannah, Ga.
BLANCHFIELD, JOHN I., Brooklyn, N. Y.
CARMICHAEL, E. T., Elkhart, Ind. (Indiana)
CASSELL, W. H., Baltimore, Md.
CHALMERS, W. D., Baton Rouge, La. (Southwestern)
CLINTON, DEWITT, Worcester, Mass. (N. E. Assn. Gas Engrs.)
DRIVER, F. P., Boston, Mass.
DOBBINS, W. A., Boston, Mass.
ERLACH, PETER, Hammond, Ind.
HAASE, EWALD, Milwaukee, Wis. (Wisconsin)
HALL, H. B., East Braintree, Mass. (Gas Sales)
HALL, ISAAC S., Boston, Mass.
HEINS, J. W., Philadelphia, Pa.
JAMES, F. M., Aurora, Ill. (Illinois)
KELLER, A. R., Syracuse, N. Y.
LAWALL, H. J., Philadelphia, Pa.
LAWRENCE, JAMES, New York, N. Y.
McKANA, G. E., Chicago, Ill.
MEYERS, W. J., New York, N. Y.
PAGE, H. M., Charleston, S. C. (Southern)
PATTERSON, F. H., Rochester, N. Y.
PETTES, W. H., Newark, N. J. (New Jersey)
PLATT, C. W., Portland, Ore. (Pacific Coast)
PORTER, EDWARD, Philadelphia, Pa. (Pennsylvania)
POTTER, O. F., Newark, N. J.
PRESSIANO, E. P., Yonkers, N. Y.
REESE, J. G., Baltimore, Md.
SAUER, W. A., Chicago, Ill.
SCOBELL, E. C., Rochester, N. Y. (Empire State)
SEARING, R. B., Sioux City, Iowa. (Iowa)
SHORT, A. P., Providence, R. I.
SPEAR, M. H., Flushing, L. I., N. Y.
TOSSELL, A. L., Chicago, Ill.
WASSER, O. E., Ithaca, N. Y.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Analysis of Gas Company Statistics—H. J. LAWALL, Philadelphia, Pa.
Customers Accounting Committee—J. L. CONOVER, JR., Newark, N. J.
Insurance—J. G. REESE, Baltimore, Md.
Nominating—W. A. SAUER, Chicago, Ill.
Relations with Customers—W. A. DOBBINS, Boston, Mass.
State Representatives—A. L. TOSSELL, Chicago, Ill.
Uniform Classication of Accounts—W. J. MEYERS, New York, N. Y.

Report of Managing Committee

Convention Arrangements Under Way

THE Committee on Analysis of Gas Company Statistics has been organized into the folowing sub-committees:

Sub-Committee on Standardization of Questionnaires—Geo. S. Cremer, *Chairman.*
Sub-Committee on Development of a Cost System for Gas Companies—R. H. Knowlton, *Chairman.*
Advisory Board on Association Statistics—H. J. LaWall, *Chairman.*

The Sub-Committee on Questionnaires at a recent meeting made arrangements to procure for each member of the committee copies of questionnaires received by gas companies from all sources. The Sub-Committee was then divided into groups and certain classes of questionnaires assigned for study to each group—such as investment manuals, directories, government statistics, etc. These groups will first assemble in one report all of the data called for on the questionnaires assigned to the committee and report its recommendations to the main committee as to changes or methods of coordinating various questionnaires. Mr. Cremer will finally assemble all such reports when the committee will make recommendations to the Managing Committee as to matters to be taken up with the originators of the questionnaires and with gas company executives as to necessary changes and alterations.

Mr. Knowlton's sub-committee met in Cleveland and studied the analysis of rate structure prepared by Mr. Haase's committee, discussing each account separately. The accounts affected in this an-

alysis were divided among different members of the Committee, and touch will be maintained with the Rate Structure Committee wherever there is any disagreement with their analysis. The Committee will not only analyze the accounts from the standpoint of demand, customer, commodity charges, etc., but will also attempt to analyze all accounts according to the "use" classification. Both committees were very enthusiastic and have a very good start in their work.

Relations with Customers

The following sub-committees have been appointed and are actively working up material for their reports:

(1) Gas Company Standards in Treating with Customers—R. F. Bonsall, *Chairman.*
(2) The Gas Company and the Telephone—J. M. Roberts, *Chairman.*
(3) Gas Company Contacts Through Customer and Employe Ownership—C. R. Stull, *Chairman.*

In addition the committee's program contemplates a paper to be prepared by Mr. J. L. Alexander which will largely discuss improvement of relations through the training of employes to take a more human interest in the affairs of the customers.

Insurance Committee

Sub-committees have been organized on the following subjects:

Group Insurance.
Public Liability and Fire Insurance.
Property Insurance.
Uniform Explosion Clause.
Standard Form of Fire Insurance Policy.
Use and Occupancy Insurance.

In addition the committee will hold itself in readiness to cooperate with the N.E.L.A. in the preparation of an insurance primer covering the fundamentals of insurance as they apply to gas and electric companies.

Customers' Accounting Committee

The principal subject to be taken up by this Committee will be the experience of the Public Service Electric and Gas Company of New Jersey in applying to their own situation the fundamental principles of the so-called Baltimore system of "Bookkeeping Without Books."

Uniform Classification of Accounts

Since the last meeting New Jersey and Vermont have both adopted the Uniform Classification of Accounts for Gas Utilities. A standard form of annual report to commissions was adopted by the National Association of Railroad and Utilities Commissioners at Phoenix, who also adopted a Uniform Classification of Accounts for Small Electric Companies. Mr. Meyers' committee is working on the Uniform Classification of Accounts for Small Gas Companies and will report later in the year.

Undistributed Structural Costs

Mr. Haase has been unable to accept the chairmanship of the Committee on Undistributed Structural Costs, which is to include in its consideration methods of capitalizing interests during construction. It has been decided that this subject is of sufficient importance to appoint a committee, which will report either at this convention or at the next a study of the entire subject, and, if possible, to recommend a standard method for gas companies affiliated with this Association of charging and entering on their books undistributed costs so that these could be clearly shown from the books and recognized by courts in determining the rate basis. Mr. J. I. Blanchfield was appointed chairman of the committee, which will be organized as rapidly as possible.

PUBLICITY AND ADVERTISING SECTION
F. L. BLANCHARD, Chairman — A. W. HAWKS, Jr., Vice-Chairman
CHARLES W. PERSON, Secretary

Why the Public Service Company Should Advertise the Community

DON E. MOWRY, Chairman, Extension Committee, Community Advertising Department of the Associated Advertising Clubs of the World

PUBLIC utilities represent capital of 18 billion dollars and they earn, gross, 3 billion dollars, while there are 33 million patrons. There are 840 street railway companies and about 300 of them buy space. There are 1,000 gas companies, but only about twenty-five per cent of them advertise. There are 3,600 light and power companies and about 10 per cent of them advertise. There are said to be about 10,000 telephone companies, many of them small, but only about 5 per cent of them advertise regularly.

Haley Fiske, president of the Metropolitan Life Insurance Company, appreciated the value of good-will toward the public utilities of this country. He issued a letter recently to 21,000,000 people insured by that company, informing them that a large share of their premiums were invested in public utility companies. "You are the real governing body in this republic," he says. "Because you elect legislators and executives you are the foundation of political power. You should be proud of your participation in the financial and social progress of your country. The ownership of public utility companies is now in the hands of more than two million direct investors and, in addi-

COMMUNITY ADVERTISING" does not simply mean the advertising which is done by a community through its commercial organization, or through a specially created committee or bureau to advertise its assets. Community Advertising implies the application of each of the agencies in the community to the problems and aims of the whole. A utility can, if it sees the value of applying some of its copy to the community in a specific way, accomplish a great deal for itself and be of direct service to the community in which it is situated. The community is helped and the utility obtains recognition and further prestige in the public eye.—Author's Note.

The above is taken from "Community Advertising" by Don E. Mowry, issued by The Cantwell Press, Madison, Wis., with permission of the author and the publisher.

tion, is indirectly owned by millions of bank depositors and holders of life insurance policies. Your life insurance company does not speculate. It makes investments to keep. There can be no doubt that public utility distribution is a most important element in our life, in community life, in household, in neighborhood life. It must be recognized that no corporate abstractions, but the American people, are the owners of the bond capital of the companies. Every policy-holder is, ipso facto, a capitalist, and an attack upon capital investments is an attack upon the wage earners of the country."

Developing through Utilities

We could not live without the utilities in the larger cities. People who live in the smaller cities and in the country do not want to live without them. The demand for "service" is becoming so urgent that utility experts tell us that millions of dollars will be required to meet the ever growing requirements. Without adequate public utility services, any community is not a successful, advertisable community, possibly in the same sense that food without flavor is not a successfully advertised commodity. If the utilities are "the allies of industry," they are likewise agencies around which communities are built, because commerce, industry, the social background, are developed and built around them and cannot function properly without them.

We have probably never looked at the situation through the eyes of a public utility man who says that "a community's public utility service is good or bad, and in like degree is that community a comfortable, convenient, and satisfactory—or contrary—place in which to live and do business."

Because public utility service contributes materially to the impression which the outsider gathers about a community, the service should concern the leaders of the community in initiating their advertising program. If the local utilities are a liability, they should be converted into an asset as quickly as possible.

The time has arrived to take the utility question out of politics and correct any evils which may exist, because community welfare is of paramount importance. If the utility is wrong, representatives of the community's interests can develop, if they will, the necessary machinery to correct existing defects. Business men appreciate the fact that the utilities must have about five dollars of capital invested for every dollar of gross income. Public utilities turn their capital every five years, while manufacturing and mercantile businesses turn their capital from two to eight or more times a year. The public utility does not gather "profits" but is simply permitted to earn a "reasonable return" on the value of its property. Utility laws, as now applied in practically all states, usually permit a return of from 6 to 8 per cent.

Many fail to understand that constantly and continuously good public utility service is maintained only by providing it before it is needed. All public utility companies must build ahead of current demands, and oftentimes ahead of visible future demands.

The citizens of one community that gained 50 per cent in population from 1910 to 1920 found, to its surprise, that its gas company was erecting a large gas reservoir—a larger reservoir than any it had in the city. The press became curious and the manager was interviewed. The population of this community was given as 40,000 in 1920 and in 1923 the reservoir was in process of erection. "We are serving 48,000 people now," said the manager, "and it is logical for us to plan ahead. We have sold securities with which to make this improvement and be prepared for the increased population which we feel certain we shall be called upon to serve."

(To be Concluded)

MANUFACTURERS SECTION

WENDELL L. SMITH, Chairman — W. E. DERWENT, Vice-Chairman
C. W. BERGHORN, Secretary

MANAGING COMMITTEE—1925

AARON, C. T., Newark, N. J.
BARTLETT, C. E., Philadelphia, Pa. (New Jersey and Pennsylvania)
BEAN, G. W., Washington, D. C. (Southern)
BRUCE, HOWARD, Baltimore, Md.
DERWENT, W. E., Rockford, Ill. (Wisconsin)
HAMILTON, P. H., Cleveland, O.
HOBBS, G., Toronto, Ont., Canada. (Canadian)
HOLLINGER, A. L., Chicago, Ill. (Indiana)
JEFFERSON, W. H., New York, N. Y.
JOHNSON, H. J., New York, N. Y.
LEMKE, F. A., Kalamazoo, Mich.
LOWE, JOHN, New York, N. Y.
MCDONALD, DONALD, New York, N. Y.
MUELLER, R., Decatur, Ill.
NORTON, A. E., Boston, Mass. (N. E. Gas Engr.)
OSTERMAN, P. C., Elizabeth, N. J.
RAMSBERG, C. J., Pittsburgh, Pa.
ROPER, GEO. D., Rockford, Ill. (Illinois and Iowa)
SEIDENGLANZ, C. H., Dallas, Texas. (Southwestern)
STITES, TOWNSEND, Gloucester, N. J.
STOCKSTROM, A., St. Louis, Mo. (Missouri)
WELLS, F. K., Boston, Mass. (Gas Sales of N. E.)
WESTON, J. A., Detroit, Mich. (Michigan)
WHITELAW, H. L., New York, N. Y.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Exhibition—WENDELL L. SMITH, Battle Creek, Mich.
Nominating—GEO. W. PARKER, St. Louis, Mo.
Laboratory Equipment—DONALD MCDONALD, New York, N. Y.
Division of Accessories Manufacturers—R. MUELLER, Decatur, Ill.
Division of Apparatus & Works Manufacturers—JOHN LOWE, New York, N. Y.
Division of Gas Range Manufacturers—CHARLES T. AARON, Newark, N. J.
Division of Heating Appliance Manufacturers—H. L. WHITELAW, New York, N. Y.
Division of Industrial Appliance Manufacturers—P. C. OSTERMAN, Elizabeth, N. J.
Division of Lighting Appliance Manufacturers—TOWNSEND STITES, Gloucester, N. J.
Division of Meter Manufacturers—W. H. JEFFERSON, New York, N. Y.
Division of Office Labor Saving Devices—H. J. JOHNSON, New York, N. Y.
Division of Supply Manufacturers—KENNETH SEAVER, Pittsburgh, Pa.
Division of Water Heater Manufacturers—P. H. HAMILTON, Cleveland, O.

Convention Exhibit Plans for Record Demand

Prospectus Ready Early in May

THE exhibition in conjunction with the Seventh Annual Convention of the American Gas Association will be held on the Steel Pier, Atlantic City, again this year during the week of October 12. The Exhibition Committee are formulating their plans to have this year's exhibit the largest ever held. The Committee are planning to have the prospectus mailed to our company members about the first of May, or earlier if possible, and anticipate an unusual demand for space. In this connection, the following figures are of interest:

At our first A. G. A. Convention in Atlantic City in 1922, we registered 2,800 delegates and guests and accommodated 135 exhibitors; in 1923, 3,400 delegates and 165 exhibitors, and last year there were 3,700 registrations and 182 exhibitors. Our manufacturer company membership for the corresponding years was

1922	227
1923	236
1924	265

At the present time our manufacturer company membership is 315.

From the above, together with the fact that general business is on a firm ground, the anticipations of the Committee in expecting an unusual demand for space are justified.

Radicals Who Are Progressives

C. M. RIPLEY,
Columbia Gas & Electric Co.,
Cincinnati, Ohio.

IN geography we used to think the world was flat, and now we know it is round. In astronomy they were positive the sun moved around the earth. Now we know of a certainty that the earth moves around the sun. The first man, however, to say that the earth moved around the sun was threatened with the tortures of the Inquisition and made to "recant."

In physiology we used to think the blood was stationary in the body like the juice of an orange. When Harvey came out with the statement that the blood circulates in the body, they wanted to run him out of the medical profession as an imposter.

In architecture the weight of the framework of buildings always used to be carried by the walls, but now in all of the steel skeleton structures, it is the weight of the walls which is carried by the framework.

Railroad car wheels used to revolve on the axle. Now they are fixed on the axle. The flange used to be on the rail, whereas now it is on the wheel.

All rubber tires used to be solid. Now most of them are hollow. Books used to be one long piece of paper called a scroll, and now they are made up of many separate short pieces of paper called pages. In writing we used to employ the quill with the ink on the outside, now we use rubber with the ink on the inside.

All airships used to be lighter than air, and now nine out of ten are heavier than air. For centuries the eye of the needle was at one end and the point was at the other, and we could not have a sewing machine until they put the eye and point both at the same end. The armatures of all motors and generators used to be on the inside of the field, but now in many types of machines the armatures are on the outside of the field.

But do not think these improvements—these revolutionary changes—have been carried out without opposition. According to the Dearborn Independent, the first telegraph wires were cut; the first railroad tracks were torn up; the first sewing machine was smashed; and the first man to sell anthracite coal in Philadelphia was run out of the State of Pennsylvania.

In 1832, a group of men in Lancaster, Ohio, wrote to the school board, requesting the use of the schoolhouse. They wanted to hold a meeting in order to promote a railroad in their vicinity. As an example of the opposition which progressive minds must always meet, you will be interested in the letter sent this group of men by the school board, as follows:

"You are at liberty to use the school house to hold meetings for all proper purposes. But railroads and telegraphs are impossible and rank infidelity. If God had intended His intelligent creatures should travel at the frightful speed of sixteen miles an hour by steam, He would clearly have foretold it in the holy prophets. It is a device of Satan to lead immortal souls to Hell."

Now and then we meet some courageous individual who thinks he has some new way of doing something. Let us remember the great changes which have taken place in the past generations and in recent years. Then we will be tolerant of his views.

Yes—the world is changing. The radical engineering thought of today is the progressive thought of tomorrow; and one interesting thing about it is that engineers and scientists are in the forefront in revolutionizing ideas and demonstrating why people should adopt the new devices and different modes of work and living conditions, which they have made possible with inventions and discoveries.

*From "Hail Columbia."

INDUSTRIAL GAS SECTION

H. O. LOEBELL, Chairman — F. F. CAULEY, Vice-Chairman

C. W. BERGHORN, Secretary

MANAGING COMMITTEE—1925

ALLINGTON, J. B., Rochester, N. Y.
ANDREW, H. O., New York, N. Y.
BROUGHTON, H. E., Jackson, Mich. (Michigan)
CLARK, H. H., Chicago, Ill. (Illinois)
DE CORIOLIS, E. G., Boston, Mass.
DEFREITAS, W., New York, N. Y.
J. H. GUMZ, San Francisco, Cal.
HARDING, D. J., York, Pa. (Pennsylvania)
HENRY, H. M., New York, N. Y.
HEPBURN, W. M., New York, N. Y.
HILTON, C. A., Pawtucket, R. I., (Gas Sales of N. E.)
HOLMAN, H. B., St. Louis, Mo. (Missouri)
HORN, R. J., Texarkana, Tex. (Southwestern)
KRAUSSE, C. C., Baltimore, Md.
LEINROTH, J. P., Newark, N. J.
METTENET, F. X., Hammond, Ind. (Indiana)
MOREHEAD, JR., I. H., Atlanta, Ga. (Southern)
MUEHLBERG, C. E., Denver, Col.
PETERSON, C. G., Providence, R. I.
QUINN, J. F., Brooklyn, N. Y.
QUINN, J. J., Quincy, Mass. (N. E. Gas Engrs.)
RAMSAY, R. E., Philadelphia, Pa.
SCHUETZ, A. A., Milwaukee, Wis. (Wisconsin)
SELLMAN, N. T., New York, N. Y.
SLIMPIN, C. D., Montreal, Canada. (Canadian)
SMITH, H. H., Boston, Mass.
STAHL, C. R., Davenport, Iowa. (Iowa)
STEPHANY, E. J., Pittsburgh, Pa.
THOMPSON, W. D., St. Louis, Mo.
WATSON, H. E. G., Toronto, Ont., Canada.
WHITWELL, G. E., Tacoma, Wash. (Pacific Coast)
YOUNG, R. R., Newark, N. J. (New Jersey)

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Advertising—F. F. CAULEY, Chicago, Ill.
Contact with Committee on Cooperation with Educational Institutions—J. J. QUINN, Quincy, Mass.
Education of Industrial Salesmen—J. P. LEINROTH, Newark, N. J.
Nominating—H. H. CLARK, Chicago, Ill.
Policy—F. F. CAULEY, Chicago, Ill.
Progress—C. C. KRAUSSE, Baltimore, Md.
Publicity—H. O. ANDREW, New York, N. Y.
Rates—H. O. LOEBELL, New York, N. Y.
Research—J. B. ALLINGTON, Rochester, N. Y.
Survey—R. E. RAMSAY, Philadelphia, Pa.

To Advertise Industrial Gas

Plans of Survey and Publicity Committees Outlined

A PLAN to have industrial surveys made of some 20 cities each in New York and New Jersey was outlined by R. E. Ramsay, Chairman of the Survey Committee, at a recent meeting of the Industrial Gas Section. This information, he said, could be projected to cover the whole of both states to show the potential field for industrial gas. The Committee will prepare an outline of what such surveys should cover.

Rates Committee

H. O. Loebell reported that his committee had begun collecting valuable data on the subject and would be prepared shortly to submit recommendations to the general Committee on Rate Structure.

This Committee is going to undertake to collect all of the data that is available from those companies who have had for a period of time certain types of rates which have been effective in securing more business, and will get data on actual results that they have obtained from the application of these rates.

Policy Committee

F. F. Cauley reported the organization of his committee with acceptances of appointment from R. B. Brown, R. E. Ramsay, C. A. Munroe, G. E. Whitwell and F. M. Rosenkrans. The names of F. C. Freeman and C. E. Paige were added to the Committee.

The average gas company will make ten times as rapid progress if the management is sympathetic to the idea of industrial gas. This Committee can gather from the activities of all companies represented in this Section those points which the management needs to be informed upon and see that all gas companies get this information, pointing

out to them the progress that has been made elsewhere. Gas companies may oppose a survey because they do not have all the facts in the case. It is up to the Committee to present them. The Policy Committee does not deal with the industrial field men. It deals with the management of the gas companies.

With industrial gas we are in a competitive game. Without a definite and distinct policy the average gas company gets nowhere. The Policy Committee must point out to the industrial men that they must give back to the president or manager results which will be far reaching. The Committee is composed of members of the Industrial Section who understand their problem, and of other members and executives who are sympathetic with the industrial work, so that we can obtain their viewpoints in presenting our case to the industry at large in a most complete manner.

Progress Committee

Data on installations of long-standing, unique and new installations, and installations that have been modified to gain efficiency, are to be collected on a standard form to be designed by the Committee. The Committee contemplates eventually publishing these in the form of a handbook.

Education of Salesmen

Attention was recently called to the need of more industrial gas salesmen; a type of man who is going to sell and who will inspire confidence, enthusiasm and vision. He needs supplementary study that will fire his imagination and desire to get business. Performance cost and fundamentals should be studied. This Committee will show the salesman where he can get the knowledge and how to get it.

It has been suggested to the Committee that they develop a plan by which the industrial salesman can have the opportunity of visiting important installations and studying them in operation.

It has also been suggested that the Committee give thought to the development of a salesmanship course to be underwritten by the appliance manufacturers.

Advertising Committee

Upon the unanimous approval of the advertising plan submitted by F. F. Cauley, the following recommendations have been adopted:

1. That of the money to be raised for industrial advertising, $1000 and no more be appropriated for art work, cuts, etc.
2. That all gas companies be invited to submit photographs, cuts and drawings of actual installations.
3. That the proposal of the Pratt & Lindsey Co. to handle the entire advertising campaign for a stipulated fee for 6 months be accepted.
4. That the balance be appropriated for actual space for 6 months each in about 30 trade papers, and that the advertising media be selected by the Advertising Committee in consultation with the agency.
5. That the Advertising Committee be authorized to approve layouts, copy, slogans used in these campaigns, etc., before publication.

Publicity Committee

The function of the Publicity Committee of the Industrial Gas Section is to correlate and present the work of this Section.

Those to be reached by this publicity may be divided into four classes, viz:

1. The industrial gas men.
2. Gas company executives.
3. Heat users in all industries.
4. The general public.

The program for accomplishing this result has been laid out as follows:

Articles will be published in the American Gas Association MONTHLY for the benefit of the industrial gas men and the gas company executives.

COMMERCIAL SECTION

J. P. HANLAN, Chairman R. L. BURDICK, Secretary J. B. MYERS, Vice-Chairman

MANAGING COMMITTEE—1925

ADAMS, W. A., Chicago, Ill.
AMMERMAN, RAY, Jenkintown, Pa.
ATWOOD, B. H., Wilmington, Del.
BAILEY, E. P., JR., Cleveland, Ohio.
BARTLETT, C. E., Philadelphia, Pa.
BURKE, E. J., Indianapolis, Ind. (Indiana)
BURNS, J. J., St. Louis, Mo.
CANNIFF, R. J., Poughkeepsie, N. Y.
CAPEN, FRANK, Boston, Mass. (Gas Sales of N. E.)
CLARK, J. C. D., Boston, Mass.
CLAY, NOBLE L., Winston- Salem, N. C.
COONEY, E. J., Lowell, Mass.
COOL, WILEY F., St. Louis, Mo. (Missouri)
CRANKSHAW, J. WARD, Allentown, Pa. (Pennsylvania)
DAVIES, J. E., Chicago, Ill.
GASTON, LUTHER, Birmingham, Ala. (Southern)
GOULD, WM., Boston, Mass.
GRANT, STANLEY, Philadelphia, Pa.
HAYES, D. W., Detroit, Mich. (Michigan)
HUMM, A. W., New York, N. Y.
JOHNSON, W. B., Toronto, Ont., Canada. (Canadian)
JONES, JACOB B., Bridgeton, N. J. (New Jersey)
KARSHNER, G. M., New York, N. Y.
KENNEDY, THOS. F., New York, N. Y.
KEYS, HARVEY A., Pittsburgh, Pa.
KLOPP, G. C., Chicago, Ill. (Illinois)
LITTLE, STANLEY E., Lorain, Ohio.
LUTHER, C. A., Chicago, Ill.
MARTIN, E. H., Des Moines, Iowa. (Iowa)
NORTH, M. F., Fort Wayne, Ind.
PHENICIE, C. R., Green Bay, Wis. (Wisconsin)
POST, A. P., Philadelphia, Pa.
REAGAN, W. J., Utica, N. Y. (Empire State)
SMITH, DORSEY R., Baltimore, Md.
STOTZ, LOUIS, Philadelphia, Pa.
SWANN, ADA BESSIE, Newark, N. J.
TUDBURY, JOHN L., Salem, Mass. (N. E. Gas Engrs.)
VALENTINE, H. D., Chicago, Ill.
WARDELL, C. W., Philadelphia, Pa.
WHITWELL, G. E., Tacoma, Wash. (Pacific Coast)
WISKE, P. B., Brooklyn, N. Y.

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Architects and Builders—W. A. ADAMS, Chicago, Ill.
Gas Refrigeration—H. D. VALENTINE, Chicago, Ill.
Home Service—MISS ADA BESSIE SWANN, Newark, N. J.
Sales Stimulation—R. J. CANNIFF, Poughkeepsie, N. Y.

Slogan Contest Announced

To Issue Monthly News Bulletin

THE following suggestions for Home Service slogans have been offered for consideration of the Committee:

"Home Service Humanizes Gas Service."

"Home Service—A Social Obligation—A Community Service and a Merchandising Opportunity."

"Home Service is Good Gas Service."

"Home Service Makes for Better Homes."

The suggestion has been made of offering a prize for the best slogan, and at a recent meeting it was decided to work up a contest offering a prize of $25.00 to any member of the gas industry submitting the best slogan for home service before March 31.

Home Service News

It has been suggested to issue a timely bulletin each month to every member of the American Gas Association, including especially the executives of gas companies. It is felt that this activity should not be tied in with the Sales Stimulation Service, but should be a separate piece of publicity which could be read at a glance and which would present the story of home service work in an interesting and attractive manner. This "key" should be a "chatty" publication including information as to what, where and by whom home service work is being done each month.

The secretary of the Commercial Section will be responsible for twelve editorials for the Monthly Home Service News of the Home Service Committee. Timely information which is to be published in the Monthly News will come from every member of the Home Service Committee to the chairman once a month, and the editing and printing of

the bulletin will be combined in the hands of the secretary and the chairman of the Committee.

It is the opinion of the Committee that material can be obtained in rotation from the 75 companies now operating home service departments, and that any material in excess of that necessary for the Home Service News should be used in the MONTHLY.

Special effort will be made to reach those companies not operating home service departments with a view to interesting them in the development of such department. Copies of the News will also be sent to the following: trade magazines of the industry, house organs of appliance manufacturing companies and food manufacturing companies, gas company house organs, the A. G. A. MONTHLY, and other periodicals, such as women's magazines and newspapers. State Committees on Public Utility Information will also receive copies.

Regional Representatives

Regional representatives will be appointed for promoting home service work among the companies assigned to them, and the collection of news data will be organized with the aid of the secretary and sent to each regional representative. A representative will be appointed to promote home service work, and data and information will be submitted monthly through the regional representative covering the activities in that section to the chairman of the Commercial Section and the chairman of the Home Service Committee.

Radio Broadcasting

It has been suggested that the Home Service Committee undertake to use this means of direct contact with the home on a national basis by tying up with private broadcasting stations for morning talks; also that a definite follow-up of this suggested activity be undertaken, which would tie the gas company to its consumers and put over this practical data in a more or less permanent record form. This could be done by the compilation and edition, in cooperation with the Sales Stimulation Committee, of a home practice course in cookery which could be made up in loose-leaf form with binders, and sold to consumers.

Salesmanship A La Houdini

IF anybody doubts that an entire meal can be cooked by an automatic heat controlled gas oven, they should be convinced by a unique demonstration put on by the Lexington, Ky., agent of a certain manufacturer.

The agent used an ordinary porch-swing chain and a new lock with two keys, and the day before the demonstration he asked for some lady to come down the next day and watch the meal being placed in the oven. When she came, she was given both of the keys and told not to come back until the time for the meal to be taken out.

Padlocking the Oven

TECHNICAL SECTION

R. C. CORNISH, Chairman — J. P. HAFTENKAMP, Vice-Chairman
H. W. HARTMAN, Secretary

MANAGING COMMITTEE—1925

Bates, H. E., Chicago, Ill. (Illinois)
Buckbee, W. C., New York, N. Y.
Bueker, W. A., St. Louis, Mo.
Brown, J. A., Jackson, Mich. (Michigan)
Duckminster, R., Pawtucket, R. I. (Gas Sales)
Derrick, R. H., New York, N. Y.
Cattell, Jr., R. A., New York, N. Y.
Cook, Jr., H. R., Baltimore, Md.
Evans, Geo. B., St. Louis, Mo.
Fowler, H. C., Sedalia, Missouri. (Missouri)
Fulkner, A. C., Pittsburgh, Pa.
Freeman, F. C., Providence, R. I. (N. E. Gas. Engrs.)
Hof, C. W., Glassboro, N. J. (New Jersey)
Humphreys, J. J., Montreal, Quebec, Can. (Canadian)
Inswall, F. F., Binghamton, N. Y. (Empire State)
Kelly, T. J., Ft. Wayne, Ind. (Indiana)
Kirch, L. A., Chicago, Ill.
Levan, D. H., Savannah, Ga. (Southern)
Lyons, B. F., Beloit, Wis. (Wisconsin)
Morris, W. R., Jersey City, N. J.
Nicholls, P. E., Galveston, Texas. (Southwestern)
Perry, J. A., Philadelphia, Pa.
Porter, R. G., Chester, Pa.
Seymour, F. W., Battle Creek, Mich.
Snyder, A. I., Detroit, Mich.
Streng, L. S., Louisville, Ky.
Squier, H. N., Scranton, Pa. (Pennsylvania)
Vittinghoff, H., Boston, Mass.
Weber, F. C., New York, N. Y.
Williams, C. T., Sioux City, Iowa. (Iowa)
Willien, L. J., Boston, Mass.
Yard, W. S., San Francisco, Cal. (Pacic Coast)

CHAIRMEN OF SECTIONAL COMMITTEES ORGANIZED TO DATE

Carbonization—A. M. Beebee, Rochester, N. Y.
Condensing and Scrubbing Committee—D. W. Flowers, St. Paul, Minn.
Chemical Committee—A. F. Kunberger, Philadelphia, Pa.
Distribution—H. E. Bates, Chicago, Ill.
Measurement of Large Volumes of Gas—M. E. Benesh, Chicago, Ill.
Nominating—L. J. Willien, Boston, Mass.
Revision of Catechism—W. J. Serrill, Philadelphia, Pa.
Water Gas—J. H. Warnick, Elrama, Pa.

Carbonization Tests Outlined

Distribution Committee Meets in May

TENTATIVE plans, subject to the approval of the Executive Board, are being considered by the Carbonization Committee to hold plant tests based on the Carbonization Test Code at the following situations—

Buffalo, N. Y., Woodall Duckham Continuous Verticals.
Rochester, N. Y., U. G. I. Intermittent Verticals.
Syracuse, N. Y., New Type U. G. I. Intermittent Verticals.
Utica, N. Y., Koppers Coke Ovens.
Lowell, Mass., Horizontal Verticals.

Details Described

Mr. A. M. Beebee has submitted the following statement of arrangements and expenses involved:

In order to carry out the work it is proposed to have an engineer in complete charge of the tests, and this man will be furnished by the Massachusetts Institute of Technology. It will be his duty to visit all of the plants during the preceding month of the test and make sure all arrangements are properly taken care of and that everything is in readiness, as well as to properly instruct those who will be in charge of the test. His salary will be paid by the Massachusetts Institute of Technology. However, it is proposed that his traveling and living expenses be met by the Association. Under him at each plant it is proposed to have an engineer. The following represents the present plan:

BUFFALO—The test will be conducted here by a Mr. Cobb, who is Assistant Director of the Buffalo Station of the Massachusetts Institute of Technology. As he is located in Buffalo, there will be no expense to the Association for him.

ROCHESTER—This test will be un-

der the supervision of a cadet engineer. Therefore there will be no expense to the Association here.

UTICA—To be arranged.

LOWELL—It is proposed here to use one of the Bureau of Mines' engineers, whose salary will be paid by the Bureau of Mines, the Association to bear expense of traveling and living.

SYRACUSE—This test will be conducted by an engineer, who will be selected from the above group, as this test will not be run until two months after the others. The expenses of this test will be reimbursed to the Association by the U. G. I. Company, and hence no expense will here be involved.

In addition to the above, it will be necessary for Mr. Wilson to make at least three trips around to the various plants, before, during and after the tests, and it does not seem fair to burden the Iroquois Gas Company with his traveling expenses. They, however, are willing to furnish his salary and other expenses.

The Massachusetts Institute of Technology have offered the use of whatever testing equipment they have so there should be no expense to the Association for equipment at plants that now have not sufficient equipment.

The work in connection with sampling of cokes and testing to be done thereon will be handled by the Massachusetts Institute of Technology, and the freight rates of the cokes, etc., will be about the only expense involved to the Association. They will furnish all the equipment and carry on the tests for us.

Distribution Committee

The Distribution Committee has been practically organized with a membership of about 45 distribution engineers throughout the country. An executive committee has been appointed from the main committee, which at a recent meeting decided that the program would include:

a. A general two-day meeting of the entire committee to be held some time in May to discuss all distribution problems that may be developed from a form of questionnaire as was done last year.

b. A concentration on several of the more important problems in the distribution field which will be assigned to special members or to sub-committees of the main committee for a more complete report at the convention.

Each member of the Committee has been requested to indicate the most important subjects for special study, and among others the Committee will endeavor to present the economics of distribution design from a slightly different angle than heretofore. Pipe joints will be elaborated upon and in all probability the effect of househeating on the distribution system.

The secretary brought up the fact that at the Distribution Session at the last convention it was recommended that a Committee on Demand Recording Meters be appointed, with the chairman chosen from the Technical Section and representatives on the Committee from the Rate Structure Committee, the Distribution Committee, the Industrial Gas Section and the Committee on Measurement of Large Volumes of Gas.

Condensing and Scrubbing Committee

Mr. D. W. Flowers has accepted the chairmanship of this committee, which is at present being organized. The Committee will attempt to procure through operating members data on tests for capacity required in different types of condensers. The cooperation of representatives of universities will be obtained so far as possible in any research work on the problems underlying condensing, and possibly a paper will be forthcoming as a result of this research work.

Associations Affiliated with A. G. A.

Canadian Gas Association
Date of affiliation—Mar. 25, 1919.
Pres.—E. R. Hamilton, Nova Scotia Tramways & Power Co., Halifax, N. S.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.
Conv., Quebec, Que., July 15 and 16, 1925.

Empire State Gas and Electric Association
Date of Affiliation—Nov. 21, 1919.
Pres.—M. S. Sloan, Brooklyn Edison Co., Brooklyn, N. Y.
Chairman Gas Section—F. F. Ingwall, Binghampton Gas Works, Binghampton, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Annual Meeting, 1925.

Illinois Gas Association
Date of Affiliation—Mar. 19, 1919.
Pres.—J. G. Learned, Public Service Co. of Northern Illinois, Chicago, Ill.
Sec.-Treas.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., Chicago, Ill., March 18, 19, 1925.

Indiana Gas Association
Date of Affiliation—April 24, 1919.
Pres.—G. M. Johnson, Northern Indiana Gas & Electric Co., South Bend, Ind.
Sec.-Tr.—E. J. Burke, Citizens Gas Co., Indianapolis, Ind.
Conv., 1925.

Iowa District Gas Association
Date of Affiliation—May 21, 1919.
Pres.—H. J. Carson, Cedar Rapids Gas Co., Cedar Rapids, Ia.
Sec.-Tr.—H. R. Sterrett, 551 Seventh St., Des Moines, Ia.
Conv., 1925.

Michigan Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—Chester Grey, Lansing Fuel & Gas Co., Lansing, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., 1925.

Missouri Association of Public Utilities
Pres.—C. L. Proctor, Empire District Electric Co., Joplin, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Conv., 1925.

New England Association of Gas Engineers
Date of Affiliation—Feb. 19, 1919.
Pres.—C. R. Prichard, Lowell Gas Light Co., Lowell, Mass.
Sec.-Tr.—J. L. Tudbury, 247 Essex St., Salem, Mass.

Gas Sales Association of New England
Date of Affiliation—Oct. 1, 1919.
Gov.—J. J. Quinn, Citizens Gas Co., Quincy, Mass.
Sec.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Annual Meeting, 1925.

New Jersey Gas Association
Date of Affiliation—April 25, 1919.
Pres.—Raymond W. Lee, Cumberland County Gas Co., Millville, N. J.
Sec.-Tr.—R. A. Koehler, Public Service Gas Co., Newark, N. J.

Pacific Coast Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—E. L. Hall, Portland Gas & Coke Co., Portland, Ore.
Exec. Sec.—Clifford Johnstone, 619 Wells Fargo Bldg., San Francisco, Calif.
Conv., Portland, Ore., 1925.

Pennsylvania Gas Association
Date of Affiliation—April 10, 1919.
Pres.—John A. Frick, Allentown-Bethlehem Gas Co., Allentown, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., 1925.

Southern Gas Association
Date of Affiliation—May 20, 1919.
Pres.—W. H. Taylor, Georgia Railway & Power Co., Atlanta, Ga.
Sec.-Tr.—J. P. Connolly, 141 Meeting St., Charleston, S. C.
Conv., Wilmington, N. C. June 9-11, 1925.

Southwestern Public Service Association
Date of Affiliation—September 26, 1923.
Pres.—G. W. Fry, West Texas Utilities Co., Abilene, Texas.
Chairman Gas Section—F. C. Armbruster, Southwestern Gas & Elec. Co., Shreveport, La.
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., Houston, Texas, May 19-22, 1925.

Wisconsin Utilities Association
Date of Affiliation—March 25, 1919.
Pres.—G. C. Neff, Wisconsin Power & Light Co., Madison, Wis.
Chairman Gas Section—J. G. Felton, Northern States Power Co., La Crosse, Wis.
Exec.-Sec.—J. N. Cadby, 445 Washington Bldg., Madison, Wis.
Conv., 1925.

Geographic Divisions

Eastern States Gas Conference
Date of Formation—April 11, 1923.
Pres.—P. S. Young, Public Service Gas Co., Newark, N. J.
Sec.-Tr.—R. A. Koehler, Public Service Gas Co., Newark, N. J.
Conv., Newark, N. J., April 22 and 23, 1925.

Employment Bureau

SERVICES REQUIRED

WANTED—Gas Main laying foreman for gas company in vicinity of New York. Address A. G. A. Key No. 044.

WANTED—An experienced man to take charge of gas department in a small New England city. It is a water gas plant with annual sales of about 31,000,000 cu. ft. In writing state fully your training, experience and salary expected. Address A. G. A. Key No. 046.

WANTED—Bookkeeper wanted for bookkeeping and other clerical work in general office in village of 4,000. School town in Northern New York. Address: St. Lawrence County Utilities, Inc., Potsdam, N. Y. Key No. 048.

ENGINEER—A large Eastern engineering and contracting organization, specializing in public utility work, desires the services of an energetic engineer of good personality, with technical education and experience in construction operation and design of coal and water gas plants, to handle engineering and preparation of plans and specifications for new gas works and works improvements, also to handle such questions with customers on contracts entered into. Adress A. G. A. Key No. 049.

WANTED—GAS RANGE SALESMEN. Representatives wanted for the Eastern States. Address A. G. A. Key No. 050.

SALESMAN—We make a well known Trade Name line. Industrial gas equipment. Easily sold. Pays big commissions. Address A. G. A. Key No. 051.

WE HAVE AN OPENING for a college man with M.E. or C.E. degree in our Gas Distribution Department. Man under thirty (30) with two or three years' cadet engineering experience on gas distribution work preferred. Apply Key No. 052.

WANTED—Can use two industrial gas engineers in cities of about 100,000 population in the middle west. Address A. G. A. Key No. 053.

WANTED—A gas company desires the services of a technically trained industrial gas and gas appliance sales engineer. (In writing, state fully your training.) Address A. G. A. Key No. 054.

WANTED—Chemist for a Gas Company in New England who has had the requisite training and experience to do the regular routine chemical work and research work required. Address replies, giving details of training and experience, to A. G. A. Key No. 055.

WANTED—Water heater salesman wanted by well-known manufacturer of automatic gas water heaters; preferably residing in Brooklyn, N. Y. Address A. G. A. Key No. 056.

INDUSTRIAL GAS ENGINEER WANTED. A syndicate in Eastern New York requires a man with extensive experience on forging, heat treatment and annealing applications. Personality and sales experience essential. Address A. G. A. Key No. 057.

GAS COMPANY operating in the Metropolitan District, New York, offers a permanent position to a thoroughly qualified Street Main Foreman. Address giving experience, salary expected and when services are available. Answers will be considered confidential if desired. Address A.G.A. Key No. 058.

SERVICES OFFERED

WANTED—Position of responsibilty as Manager or Industrial Fuel Engineer—18 years' varied experience in the gas business. References and service record furnished. Address A. G. A. Key No. 142.

WANTED—An Executive Position in Commercial Department. Young man with 14 years' experience and a thorough knowledge of the gas business. Salary discretionary. Address A. G. A. Key No. 186.

WANTED—Am open for position as appliance salesman with Gas Company or Appliance Manufacturer. Have had twelve years' experience selling ranges, water heaters, room heaters and illuminating devices. Am at present employed in this capacity by a large corporation, but desire to make a change. Can furnish references from present and past employers. Married. Can report on reasonable notice. Address A. G. A. Key No. 179.

GAS ENGINEER—Eighteen years' experience in design, construction and operation of gas plants, all departments, manufacture and distribution, also electrical experience in combination plants desires position of responsibilty with progressive company. Past six years chief engineer with large gas company. Address A. G. A. Key No. 171.

ENG.-SUPT. of one of the largest gas plants in the country would consider change. Desires to locate with company in which opportunities for future advancement are better than in present position. Is a married man. Has technical University training. No particular preference as to location. Address A. G. A. Key No. 159.

EXECUTIVE, with fifteen years' experience in coke oven practice on plants manufacturing surplus gas for city consumption, desires connection with growing public utility either as executive or position leading to same. College graduate, good personality, married. Available on reasonable notice. Address A. G. A. Key No. 172.

GAS ENGINEER, 40, with thorough training (20 years) in the gas business and real executive ability, wishes to connect up with a live concern in any capacity where technical and commercial ability will count. At present engaged, but could be available on two months' notice. Address A. G. A. Key No. 175.

WANTED—Executive position by young man with eighteen years' (18) experience in all branches of gas business. Eight years (8) as manager. Past four years, vice-president and general manager of gas company with nearly 10,000 meters. Mechanical engineer. Will accept position as manager of company with 7,000 to 10,000 meters, or assistant manager and engineer, with larger company. Married man. Replies must be strictly confidential. Address A. G. A. Key No. 177.

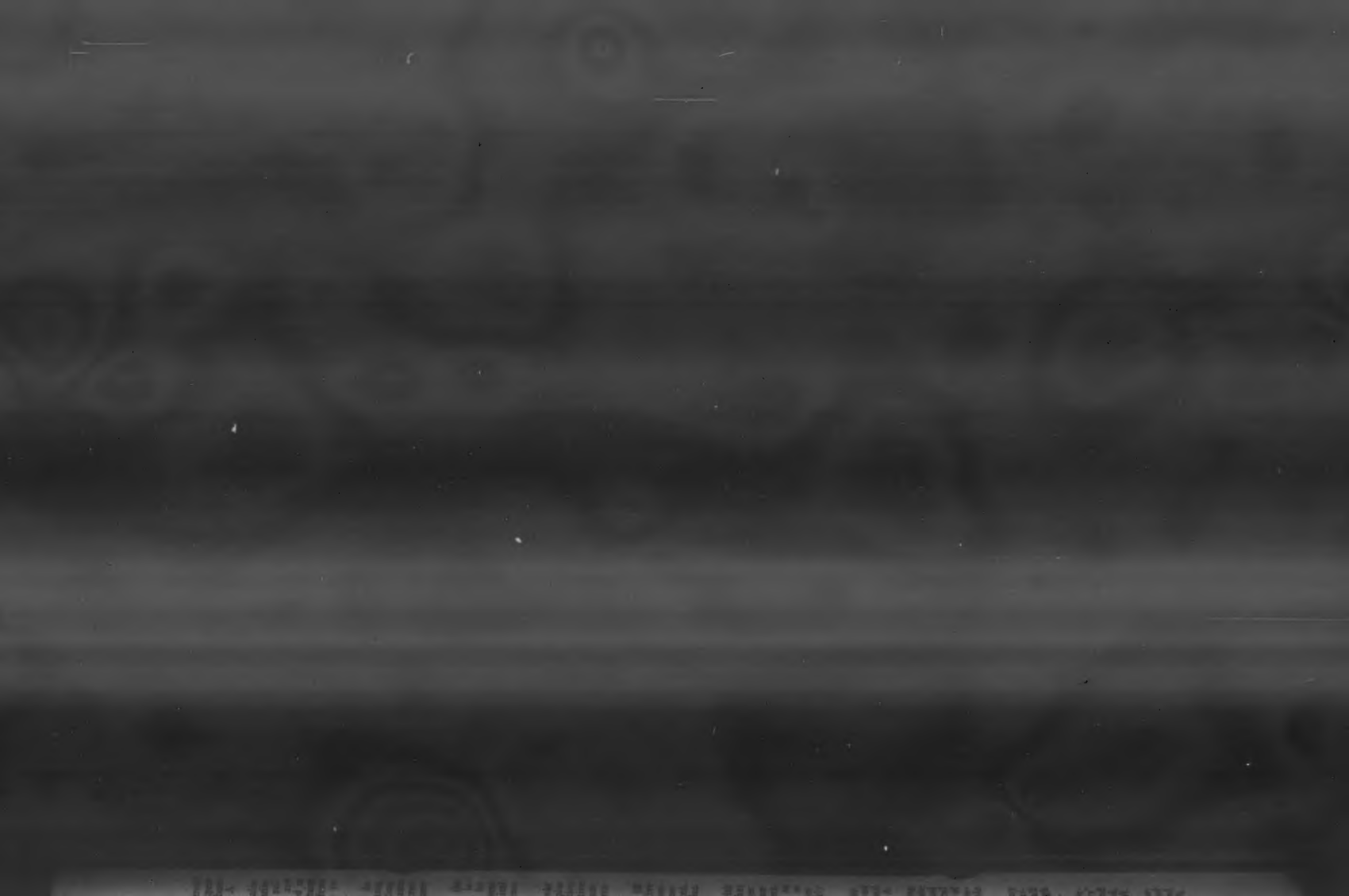
WANTED—Position as Manager of Gas Company. Coal or water gas. College trained. Have served in works, street and office. Doubled meters and doubled output in last position. Address A. G. A. Key No. 184.

WANTED—Executive position with more promising future by man with a broad practical experience in the manufacture and distribution of gas and electricity; also in the distribution of natural gas. Have operated successfully as executive of combined gas and electric property for over nineteen years. Services available upon reasonable notice to present employer. Address A. G. A. Key No. 188.

POSITION—Wanted as Supt. of small gas company or as General Foreman of large plant. Approximately seventeen years' experience in all branches of manufacture and distribution, high and low pressure systems. Address A. G. A. Key No. 190.

WANTED—An executive position in Commercial Department. Young married man with 12 years' experience and a thorough knowledge of gas and electric accounting. Moderate salary desired. Available on reasonable notice. Address A. G. A. Key No. 191.

INDUSTRIAL ENGINEER available on short notice. Nine years' experience in industrial and commercial department supervision. Record and references will be furnished. Address A. G. A. Key No. 192.



Advisory Council

GEO. S. BARROWS ..... Providence, R. I.
J. M. BENNETT ..... Philadelphia, Pa.
S. T. BODINE ..... Philadelphia, Pa.
C. N. CHUBB ..... Davenport, Iowa
H. H. CLARK ..... Chicago, Ill.
CHAS. M. COHN ..... Baltimore, Md.
R. C. CONGDON ..... Atlanta, Ga.
WM. M. CRANE ..... New York, N. Y.
J. E. DAVIES ..... Chicago, Ill.
S. E. DEFRESE ..... Rome, Ga.
J. S. DEHART, JR. ..... Newark, N. J.
CHAS. H. DICKEY ..... New York, N. Y.
L. R. DUTTON ..... Jenkintown, Pa.
P. H. GADSDEN ..... Philadelphia, Pa.
WM. GOULD ..... Boston, Mass.
W. GRIFFIN GRIBBEL ..... Philadelphia, Pa.
EWALD HAASE ..... Milwaukee, Wis.
R. B. HARPER ..... Chicago, Ill.
J. W. HEINS ..... Philadelphia, Pa.
ARTHUR HEWITT ..... Toronto, Can.
A. A. HIGGINS ..... Providence, R. I.
F. H. KNAPP ..... Pittsburgh, Pa.
A. P. LATHROP ..... New York, N. Y.
A. B. MACBETH ..... Los Angeles, Calif.
T. N. MCCARTER ..... Newark, N. J.
C. O. G. MILLER ..... San Francisco, Calif.
H. A. NORTON ..... Boston, Mass.
G. W. PARKER ..... St. Louis, Mo.
W. H. PETTES ..... Newark, N. J.
A. P. POST ..... Philadelphia, Pa.
ORD PRESTON ..... Washington, D. C.
M. C. ROBBINS ..... New York, N. Y.
GEO. D. ROPER ..... Rockford, Ill.
W. A. SAUER ..... Chicago, Ill.
H. S. SCHUTT ..... Philadelphia, Pa.
R. M. SEARLE ..... Rochester, N. Y.
F. C. WEBER ..... New York, N. Y.
L. J. WILLIEN ..... Boston, Mass.

AMERICAN GAS ASSOCIATION, INC.

HEADQUARTERS: 342 MADISON AVE., NEW YORK, N. Y.

Officers and Directors

PRESIDENT	H. C. ABELL	New York, N. Y.
VICE-PRESIDENT	C. L. HOLMAN	St. Louis, Mo.
SECRETARY-MANAGER	ALEXANDER FORWARD	New York, N. Y.
TREASURER	H. M. BRUNDAGE	New York, N. Y.
ASS'T TREASURER	W. CULLEN MORRIS	New York, N. Y.
SECTIONAL VICE-PRES.	R. C. CORNISH	Philadelphia, Pa.
SECTIONAL VICE-PRES.	J. P. HANLAN	Newark, N. J.
SECTIONAL VICE-PRES.	WENDELL L. SMITH	Battle Creek, Mich.
SECTIONAL VICE-PRES.	H. C. DAVIDSON	New York, N. Y.
SECTIONAL VICE-PRES.	F. L. BLANCHARD	New York, N. Y.
SECTIONAL VICE-PRES.	H. O. LOEBELL	New York, N. Y.

D. D. BARNUM	Boston, Mass.
R. B. BROWN	Milwaukee, Wis.
HOWARD BRUCE	Baltimore, Md.
GEO. B. CORTELYOU	New York, N. Y.
M. B. DALY	Cleveland, O.
H. L. DOHERTY	New York, N. Y.
R. J. HOLE	Greensboro, N. C.
J. J. HUMPHREYS	Montreal, Can.
ALFRED HURLBURT	Pittsburgh, Pa.
J. B. KLUMPP	Philadelphia, Pa.
F. A. LEMKE	Kalamazoo, Mich.
DONALD McDONALD	New York, N. Y.
B. J. MULLANEY	Chicago, Ill.
CHARLES A. MUNROE	Chicago, Ill.
C. E. PAIGE	Brooklyn, N. Y.
C. J. RAMSBURG	Pittsburgh, Pa.
D. J. YOUNG	Tacoma, Wash.

Section Officers

ACCOUNTING—Chairman	H. C. DAVIDSON	New York, N. Y.
Vice-Chairman	DeWITT CLINTON	Worcester, Mass.
Secretary	H. W. HARTMAN	Ass'n Headqtrs.
PUBLICITY AND ADVERTISING		
Chairman	F. L. BLANCHARD	New York, N. Y.
Vice-Chairman	A. W. HAWKS, Jr.	Baltimore, Md.
Secretary	C. W. PERSON	Ass'n Headqtrs.
COMMERCIAL—Chairman	J. P. HANLAN	Newark, N. J.
Vice-Chairman	J. B. MYERS	Philadelphia, Pa.
Secretary	R. L. BURDICK	Ass'n Headqtrs.
INDUSTRIAL GAS—Chairman	H. O. LOEBELL	New York, N. Y.
Vice-Chairman	F. F. CAULEY	Chicago, Ill.
Secretary	C. W. BERGHORN	Ass'n Headqtrs.
MANUFACTURERS—Chairman	WENDELL L. SMITH	Battle Creek, Mich.
Vice-Chairman	WATSON DERWENT	Rockford, Ill.
Secretary	C. W. BERGHORN	Ass'n Headqtrs.
TECHNICAL—Chairman	R. C. CORNISH	Philadelphia, Pa.
Vice-Chairman	J. P. HAFTENKAMP	Rochester, N. Y.
Secretary	H. W. HARTMAN	Ass'n Headqtrs.

SECRETARY-MANAGER	ALEXANDER FORWARD	Ass'n Headqtrs.
ASS'T SECRETARY-MANAGER	H. W. HARTMAN	Ass'n Headqtrs.